



Institute for Fiscal Studies

IFS Green Budget Chapter (Pre-release)

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Pressures on the NHS



6. Pressures on the NHS

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Key findings

- 1 **The NHS was showing clear signs of strain even before the pandemic began.** The waiting list for elective treatment had grown by 50% since 2015; just 83% of A&E patients were seen within four hours in February 2020 (down from 92% in February 2015); and the estimated cost of eradicating the ‘high-risk’ maintenance backlog had quadrupled since 2010.
- 2 Following a decade of big budget increases, between 2009–10 and 2019–20 UK government health spending grew at an average real-terms rate of 1.6% per year – **lower than any previous decade in NHS history.** The NHS entered the pandemic with 39,000 nursing vacancies in England, and fewer doctors, hospital beds and CT scanners per person than in many similar countries. **Continued public sector pay restraint has meant real-terms pay cuts for many NHS staff:** average pay for consultants in 2021 is 9% lower in real terms than it was in 2011. It is 4% lower for junior doctors and 5% lower for nurses.
- 3 **NHS funding plans have been blown out of the water by the pandemic.** Theresa May’s 2018 settlement for the English NHS was to increase annual spending by an eventual £34 billion over five years. **The Department of Health and Social Care spent £63 billion on COVID-19 support in 2020–21, and is planning to spend £34 billion in 2021–22.** This includes an estimated £29 billion in additional NHS England funding (across both years), £28 billion

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for NHS Test and Trace and £15 billion on personal protective equipment (PPE).

- 4 The NHS will continue to face direct and indirect pressures from COVID-19, and pre-pandemic funding plans would be insufficient to meet them. In our central scenario, we estimate that the English NHS will need **£9 billion in 2022–23 (an increase of 6.4% relative to pre-pandemic plans), £6 billion in 2023–24 (4.1% on pre-existing plans) and £5 billion in 2024–25** to deal with pandemic-related pressures. **These are substantial, but manageable, sums.** These estimates are highly uncertain and sensitive to assumptions about the future course of the pandemic, but are broadly similar to those reached by other organisations.
- 5 The new health and social care settlement, announced by the Prime Minister in September 2021, provides an additional £11.2 billion for the Department of Health and Social Care in 2022–23 and £9.0 billion in 2023–24. Of that, around £1.8 billion each year is earmarked for social care (assuming that the £5.4 billion over three years is spread evenly). **That leaves around £9 billion of additional funding in 2022–23 and £7 billion in 2023–24, to deal with health-related COVID pressures. Based on our analysis, this could be enough to meet the pressures on the NHS over the next two years.**
- 6 **But this new funding announcement is far less likely to be sufficient in the medium term.** The extra funding provided for the NHS in the recent announcement will result in spending growing at 3.9% a year between 2018–19 and 2024–25, exactly the same rate of growth as was planned between 2018–19 and 2023–24. **That suggests that these new plans allow for little or no long-term additional costs as a result of the pandemic, whereas we estimate that virus-related pressures could amount to £5 billion in 2024–25.** Meeting those ongoing pressures would likely require additional funding, or less spending elsewhere in the NHS.
- 7 Direct COVID pressures include the costs of treating patients with COVID-19 and ‘long COVID’, Test and Trace, vaccinations, PPE and other infection control measures. **These pressures are substantial but are likely to fall rapidly from their current level.** We estimate that the combined cost of meeting these direct pressures could be around £5.2 billion in 2022–23, falling to £2.0 billion in 2023–24 and £0.9 billion in 2024–25.

- 8 **The indirect costs and pressures associated with the pandemic could be greater and more persistent.** Millions of people missed out on NHS care during the pandemic. Much of this care will need to be delivered eventually and waiting lists are likely to rise rapidly as these ‘missing’ patients come forward. **We estimate that the NHS could need £2.5 billion per year between 2022–23 and 2024–25 if it is to catch up on missed activity.** This could be sufficient to return waiting lists to their pre-pandemic levels within three years, if the NHS finds effective ways to boost capacity and unit costs do not increase substantially. **Increased demand for mental health services could cost the NHS an additional £1 billion per year. An annual 3% pay rise for NHS staff, if continued over this period, would cost approximately £0.8 billion in 2022–23, £1.3 billion in 2023–24 and £1.8 billion in 2024–25** relative to the 2.1% annual increases assumed in the NHS’s long-term plan.
- 9 The pandemic is also likely to save the NHS money in some areas. **The move to remote outpatient appointments, combined with reduced demand as a result of COVID-19 deaths, could save the NHS at least £0.7 billion per year between 2022–23 and 2024–25.** More broadly, the NHS has had to experiment hugely during the pandemic, and there are potential ‘upsides’ and gains from the resultant organisational learning.

6.1 Introduction

The COVID-19 pandemic has had deep and far-reaching impacts on the National Health Service (NHS). There have been more than 400,000 COVID-19 patients admitted into English hospitals between March 2020 and July 2021, and at the worst points of the pandemic there were genuine fears that the system might be overwhelmed. This has put incredible pressure on a health system that was already struggling to meet many of its constitutional targets even before the pandemic.

The success of the vaccination programme means that there is now less risk of COVID-19 patients overwhelming the system. But that does not mean the NHS is in the clear. In some senses, the challenge is only just beginning.

Millions of people missed treatment during the pandemic; much of that treatment will need to be delivered at some point. Waiting lists are already at their highest level since the current definition was introduced and Sajid Javid, the recently appointed Secretary of State for Health and Social Care, has warned that they could grow by millions more in the coming months (BBC, 2021a). Recent analysis by IFS researchers has shown that the only way for the NHS to catch up

is not just to return to normal, but to increase capacity relative to pre-pandemic levels (Stoye, Warner, & Zaranko, 2021).

The NHS also faces other ongoing costs and pressures from the pandemic. There will be some COVID-19 hospital admissions for a long time. Even with a small number of COVID-19 cases, the need for infection control measures and personal protective equipment (PPE) will persist as long as COVID-19 continues to circulate within the population, which will act to increase costs and reduce capacity. The vaccination programme is likely going to continue with booster doses for much of the population for the foreseeable future. The harmful mental health impacts of the pandemic have been far-reaching, with some groups (such as young women) affected more than others (Banks, Xu, & Fancourt, 2021). And the NHS may have to deal with hundreds of thousands of patients with long COVID. These pressures are on top of the pre-existing and substantial pressures associated with an ageing population and an ever-growing number of people living with multiple chronic conditions.

In the face of these pressures, and repeated requests for additional funding (e.g. Hopson, 2021), the government made a major announcement on health and social care funding on 7 September 2021. This included around £12 billion of additional funding for the Department of Health and Social Care (DHSC) in each of the next three years, alongside a corresponding tax rise. In this chapter we provide, to our knowledge, the first detailed and independent assessment of how the latest NHS funding announcement matches up to the scale of the challenge ahead.

The sheer size of the health budget means that these decisions have important ramifications for the government's overall spending plans and fiscal strategy, but also for the amount available for spending in other areas. Many other public services have also been put under considerable pressure by the pandemic, and some of the support provided to (for example) schools, public transport operators and local governments may need to be extended. But past experience tells us that the NHS gets special treatment.

The chapter proceeds as follows. In Section 6.2, we consider the NHS's starting point, in terms of its funding, resources and performance, and place these in historical and international context. In Section 6.3, we outline the plans for future NHS funding that were in place prior to the pandemic. In Section 6.4, we set out the pandemic-related pressures on the NHS and the potential financial costs associated with meeting each of these. The focus here is on the English NHS, but the issues discussed are relevant for the NHS in Scotland, Wales and Northern Ireland (and the funding of the English NHS is directly relevant for the funding of the devolved governments, due to the Barnett formula). We attempt to quantify the financial pressures from 2022–23 onwards: the period to be covered by the forthcoming Spending Review. These are summarised in Section 6.5, and compared with estimates made by other organisations. In Section 6.6, we analyse the government's latest health and social care funding announcement,

and assess its adequacy by comparing it with our assessments of the scale of NHS funding pressures. Section 6.7 concludes.

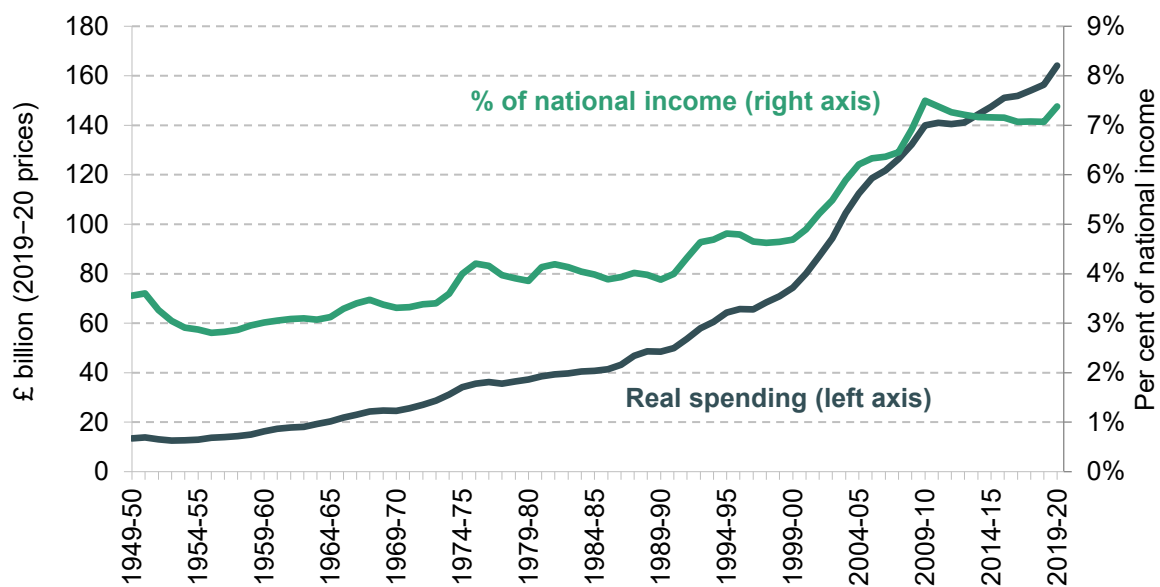
6.2 Where was the NHS pre-COVID?

Funding in historical and international context

History

Figure 6.1 shows annual government spending on health between 1949–50 and 2019–20, both in real terms and as a percentage of national income. Table 6.1 shows the corresponding real-terms growth rates in health spending (i.e. growth over and above economy-wide inflation) for different periods since 1949–50. Health spending has grown in real terms at an average real growth rate of 3.6% between 1949–50 and 2019–20. However, growth has been uneven, rising much more quickly during particular periods. For example, during the Blair and Brown New Labour governments, UK health spending grew at an average real rate of 6.0% per year.

Figure 6.1. UK health spending, 1949–50 to 2019–20



Source: Health spending: 1982–83 to 2019–20 HM Treasury Public Expenditure Statistical Analyses (various), 1978–79 to 1981–82 Statistical Supplement to FSR 1994–95, prior to 1978 Office for Health Economics. GDP: OBR Public Finances Databank (2021). GDP deflator: ONS GDP Deflators at Market Prices (2021).

Table 6.1. Average annual growth in UK government real health spending

Period	Financial years	Real health spending growth rate	Real health spending per capita growth rate
Pre-1979 governments	1949–50 to 1978–79	3.5%	3.1%
Thatcher and Major governments	1978–79 to 1996–97	3.3%	3.1%
Blair and Brown governments	1996–97 to 2009–10	6.0%	5.5%
Coalition government	2009–10 to 2014–15	1.1%	0.3%
Conservative governments	2014–15 to 2019–20	2.2%	1.5%

Source: See Figure 6.1 and ONS's Population Estimates for the UK historical time series.

Growth in health spending has tended to outstrip economic growth, so health spending has also grown as a percentage of national income. This was not the case between 2009–10 and 2018–19, however, when health spending grew more slowly than the wider economy (at an average real-terms rate of 1.2% per year) and so fell as a share of national income, from 7.5% to 7.1%. Following a sharp uptick in 2019–20, health spending increased to 7.4% of national income on the eve of the pandemic. In all periods, health spending growth has exceeded population growth, so health spending per capita has also grown over time, as shown in Table 6.1.

Although health spending has grown at a historically low rate since 2010, it is important to note that it has fared much better than most other government departments which experienced real-terms cuts to their budgets. This is discussed in more detail in Chapter 5. Moreover, for a period at least, lower growth in health spending from 2010 might have been made possible due to the very strong growth in spending over the previous decade.

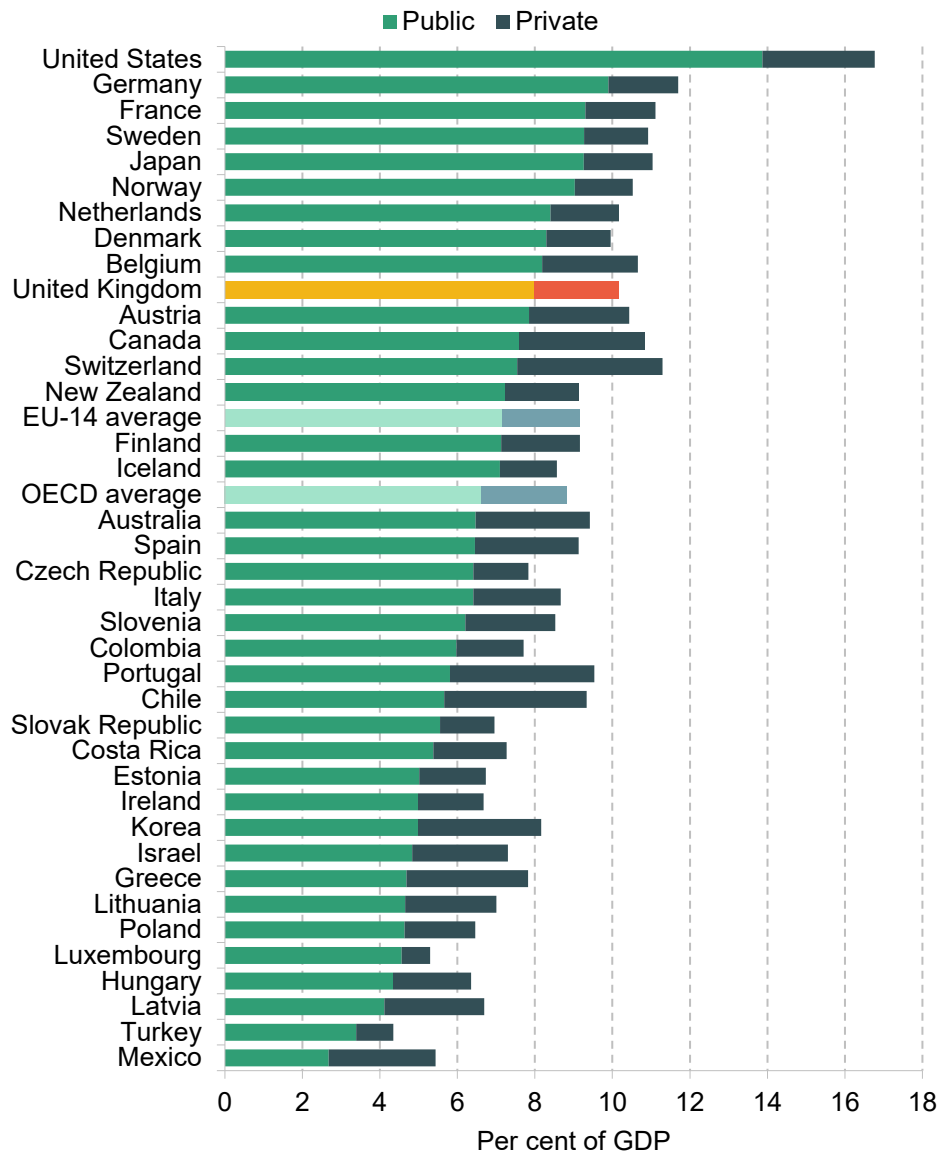
How does the UK compare internationally?

In the UK, total current health expenditure (i.e. the sum of both public and private 'day-to-day' expenditure on goods and services that are used within a year, as opposed to capital expenditure on equipment and buildings) amounted to just over 10% of national income in 2019. As shown by Figure 6.2, this was less than was spent in countries such as the US, Canada, France and Germany, but more than the (unweighted) mean and median level among OECD countries.

Within that total, the majority of current health expenditure is done by the government. At 8.0% of national income in 2019, UK government health spending is considerably higher than the OECD average of 6.6%, and higher than the average among (the then) EU-14 countries, though lower than in some of the UK's Northern European neighbours (e.g. lower than in France,

Germany, the Netherlands and Denmark).² At 2.2% of national income in 2019, private health expenditure in the UK is broadly in line with the OECD average.

Figure 6.2. Current expenditure on health as % of national income for OECD countries, 2019



Note: Public expenditure is expenditure by government or compulsory healthcare schemes. Private expenditure is expenditure by voluntary schemes and household out-of-pocket payments. 2018 levels used for New Zealand's private percentage. EU-14 are the EU member states that joined before 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden. All OECD countries are included in the graph and used to calculate the OECD average.

Source: OECD Health Expenditure and Financing (2021).

² Note that this 8.0% figure is higher than in Figure 6.1 because the OECD definition of health spending includes items that would typically be thought of and classified as 'social care' in the UK.

Differences within the UK

In 2019–20, government health spending in England was £2,427 per capita, slightly lower than in the other three parts of the UK. Northern Ireland spent £2,616 per capita (7.8% higher than England), Wales spent £2,546 per capita (4.9% higher) and Scotland spent £2,507 per capita (3.3% higher) in 2019–20 (HMT, 2021). This is due to differences in population demographics and health, how the NHS is organised and political decisions by the devolved administrations. These differences, however, are not fixed over time. The gap between Scottish and English per-capita health spending has, for example, fallen from 22% higher in Scotland at the start of devolution (1999–2000) to just over 3% higher in 2019–20 (Farquharson, Phillips, & Zaranko, 2021) as NHS spending per capita has been increased less quickly in Scotland than in England over this period.

For the rest of this chapter, we focus on the NHS in England. However, funding for the NHS in England directly affects funding for the other three nations via the Barnett formula. And all four parts of the UK will face broadly similar ongoing pressures from COVID-19.

What is health funding spent on?

The vast majority of the government's expenditure on healthcare in England goes straight to the NHS. Of the DHSC's £133.5 billion resource (current, or day-to-day) expenditure in 2019–20, 92% or £123.4 billion went to the NHS. The remainder was spent on what it terms non-NHS bodies, though some of these are branded as NHS bodies, such as NHS Digital (£0.4 billion) and NHS Resolution (£0.4 billion), which deal with data and technology, and negligence complaints, respectively. Public Health England received £0.9 billion (excluding initial COVID-19 expenditure) while local authorities received £2.9 billion in public health grants. Health Education England (the body responsible for workforce planning, education and training, including funding for medical and dental students) received £4.1 billion.

One important change that is hidden in the growing government expenditure on health pre-pandemic is the declining share that was spent on non-NHS bodies. Between 2013–14 and 2019–20, non-NHS-England DHSC resource spending fell by 15.6% in real terms. If we look within that total, Public Health England's budget in 2019–20 was roughly the same in real terms as it had been on inception in 2013–14. But over the same period, the budget for Health Education England has declined in real terms by 25%, from £5.4 billion in 2013–14 (2019–20 prices) to £4.1 billion in 2019–20.

Capital spending and capacity

Capital spending is the purchase of goods that have up-front costs but are expected to have benefits that last over a number of years. Many inputs necessary to provide healthcare – such as hospitals and large medical equipment – have this property. The sum of past capital expenditure

is therefore a key determinant of the NHS's capacity. The Conservatives' 2019 manifesto promised to build 40 new hospitals and 20 hospital upgrades; the 2020 Spending Review committed £5.4 billion over four years to (start to) deliver on this promise.

Capital spending is likely to be under even more focus in the coming years as both the government and the opposition consider how well the NHS was prepared for the pandemic, and whether it might be beneficial to operate with a greater degree of spare capacity, or 'slack', given the potential for future adverse shocks such as pandemics. There will also be focus on how much more capacity will be needed to deal with pressures from missed care during the COVID-19 pandemic and the broader pressures of an ageing population.

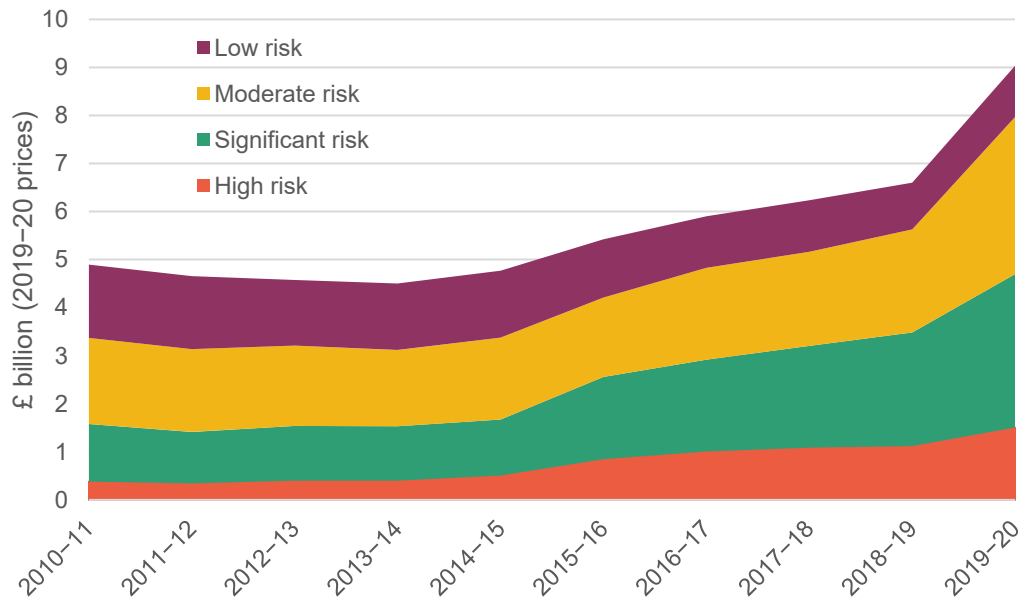
DHSC capital spending accounts for around 10% of all departmental capital spending, and around 5% of the total DHSC budget. It was cut sharply (by 37% in real terms) between 2009–10 and 2016–17, before increasing over the subsequent three years. In 2019–20, the DHSC capital budget was £7 billion, around 9% lower than a decade earlier. For comparison, over that same 10-year period, the DHSC resource budget grew by 21% in real terms.³

Because the benefits of capital spending are spread over a number of years, when the funding situation is tight there can be a temptation to cut back capital spending first, rather than reduce current spending, where the consequences of any change in funding are more immediate (if, for example, staff numbers or pay awards have to be reduced). Indeed, in past years, DHSC has repeatedly used capital funding to plug gaps in current expenditure, despite in principle this not being allowed under the Treasury's spending framework. For example, DHSC moved £0.5 billion from capital to resource budgets in 2018–19, £1.0 billion in 2017–18 and £1.2 billion in 2016–17.

A sign that capital spending has been lower than it perhaps should have been is the growing NHS maintenance backlog, as shown in Figure 6.3. This does not include planned maintenance work – rather, it is work where the judgement is that it should already have taken place. The total estimated cost to eradicate the backlog in the NHS has grown by 85% in real terms since 2010–11. Even more worryingly, the size of the high-risk backlog has quadrupled in real terms over the last decade. The cost of clearing this high-risk backlog, defined as cases 'where repairs/replacement must be addressed with urgent priority in order to prevent catastrophic failure, major disruption to clinical services or deficiencies in safety liable to cause serious injury and/or prosecution', stood at £1.5 billion in 2019–20 compared with less than £0.4 billion in 2010–11.

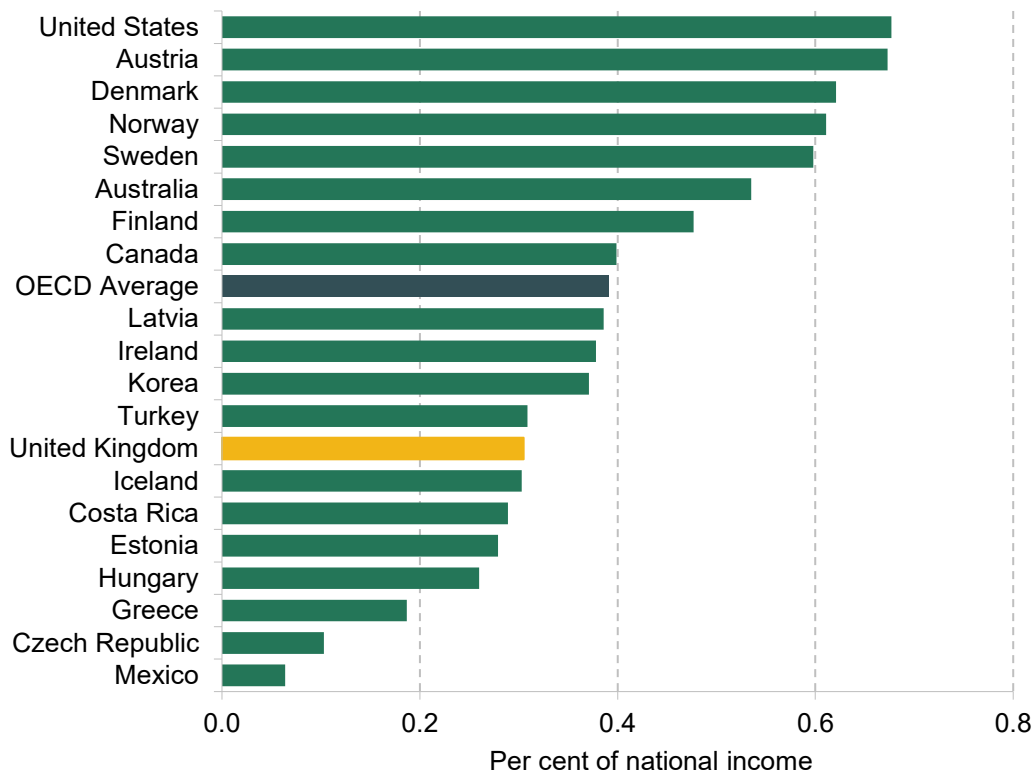
³ For more detail on how DHSC and other departmental budgets evolved over the 2010s, see Chapter 5.

Figure 6.3. Estimated cost to eradicate the NHS maintenance backlog



Source: NHS Digital's Estates Returns Information Collection (2015-19).

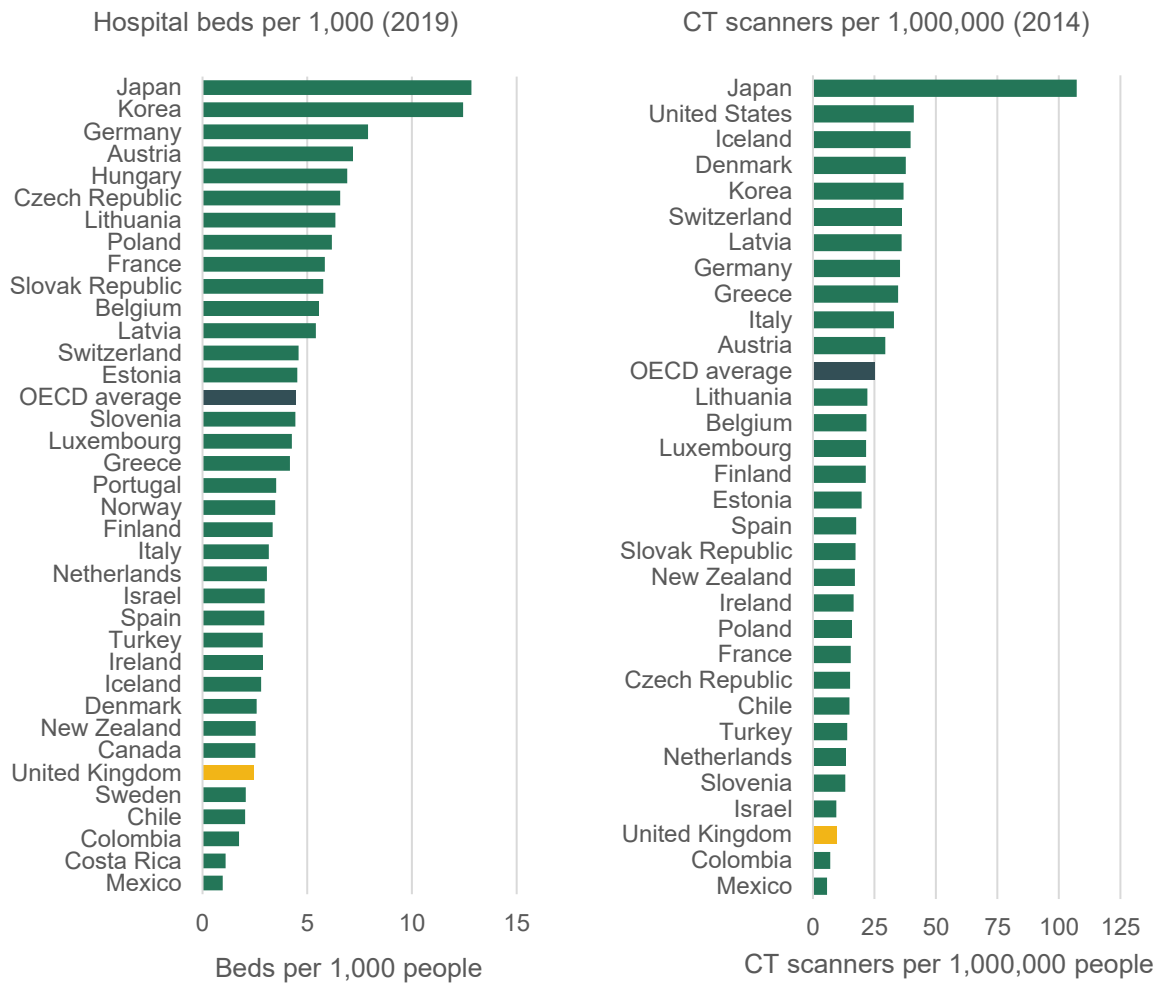
Figure 6.4. Capital expenditure in the healthcare system across OECD countries in 2019



Note: 2018 levels used for Australia and Ireland. OECD average only includes countries in the figure, which are those with available data. Capital expenditure refers to gross fixed capital formation.

Source: OECD Statistics' Gross Fixed Capital Formation in the Health Care System (2021).

Figure 6.5. Hospital resources for OECD countries



Note: OECD averages only include countries in each figure, which are those with available data.

Source: OECD Statistics' Health Care Resources (2021).

More evidence that capital spending has potentially been too low in recent years can be gleaned by comparing the UK's level with levels in similar countries. Figure 6.4 shows capital expenditure in the healthcare system for a number of OECD countries, which includes capital expenditure by private healthcare companies. In 2019, the UK spent 0.31% of national income on capital, 22% lower than the OECD average of 0.39%.

This low capital spending by international standards has fed through into fewer healthcare resources than many similar countries. Going into the pandemic, the UK had 2.5 hospital beds per 1,000 population. As Figure 6.5 shows, this is far below the OECD average of 4.4 beds per 1,000. The UK also had a relatively low number of critical care beds, at 7.3 per 100,000, lower than France (8.1 per 100,000), Australia (8.9), Canada (10.4), Germany (33.8) and the US (34.4) (Rocks & Idriss, 2020). Although the data are less up-to-date, Figure 6.5 also shows that the UK

had a very low number of CT scanners in 2014 compared with similar countries, a sign of lower investment in medical technology.

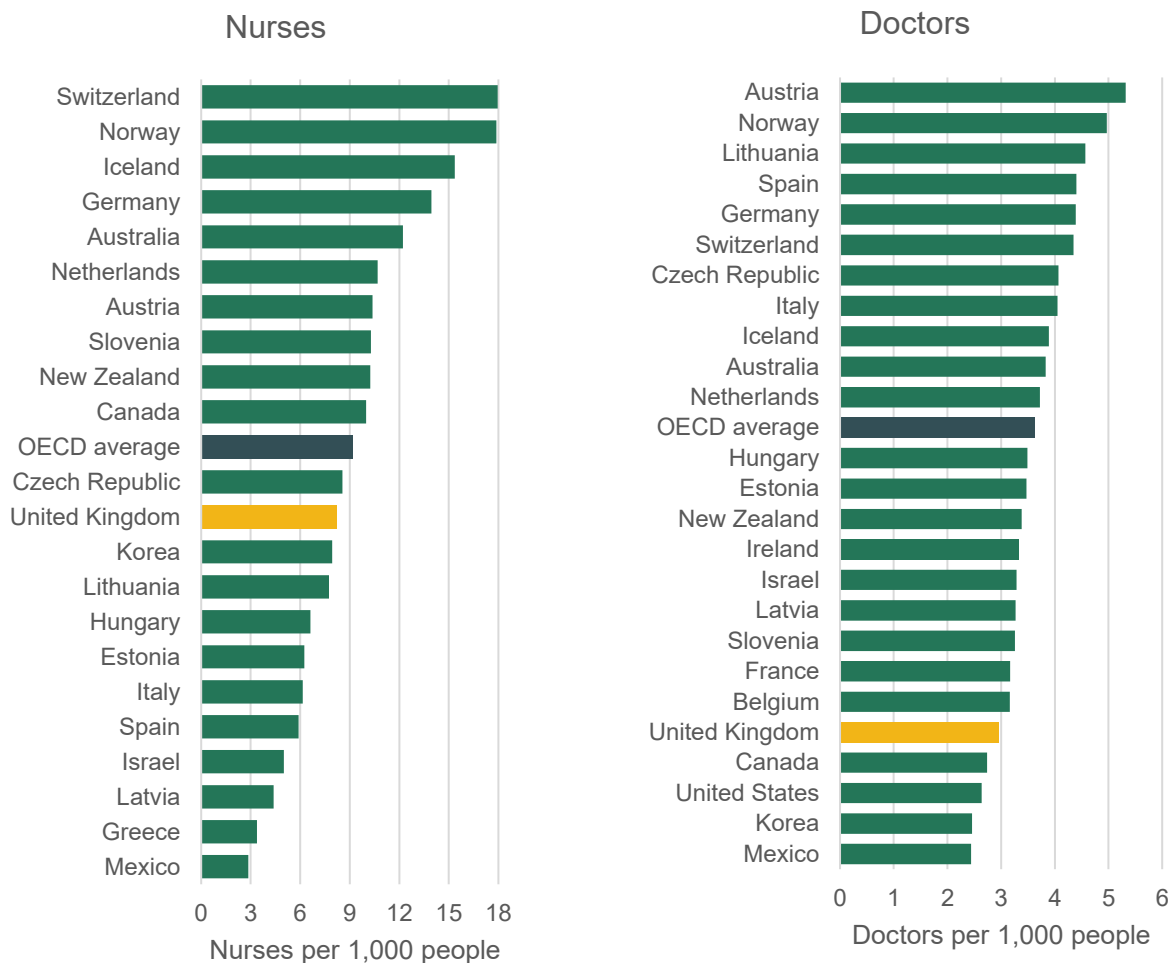
One could interpret the fact that the UK's healthcare system functions with fewer resources than those in other countries as a sign of its efficiency. Indeed, there has been a decades-long push for the NHS to reduce its number of hospital beds, from 299,000 in 1987–88 to 141,000 in 2018–19 (Ewbank et al., 2020). But since the outbreak of COVID-19, some have worried that running the health service 'hot', or at close to capacity, leaves it less resilient to adverse shocks (e.g. Cook, 2020). There are likely to be substantial benefits associated with having spare capacity in the event of a future pandemic or surge in demand for care (Coyle, Dreesbeimdieck, & Manley, 2021). That being said, it is not obvious that any additional capacity would in practice be 'spare' – the NHS may simply move to operating at close to its new, higher capacity. Nor is it obvious that it would be possible (or desirable) to operate with sufficient spare capacity to absorb an adverse shock on the scale of COVID-19: for example, having a modestly higher number of hospital beds may not do much to reduce the chances of a lockdown being needed to prevent the system being overwhelmed by a pandemic.

Staffing

International comparisons

As discussed above, the UK spends a larger fraction of national income on healthcare than the OECD average but less than similar countries such as France, Germany and Canada. It has often been argued that the UK has less healthcare resources than similar countries (Ghazaryan, Giulietti, & Wahba, 2020), which the previous subsection showed was true for hospital beds and some measures of medical technology. Here, we consider another key input: staffing. Figure 6.6 shows that the UK is middle of the pack among OECD countries for nurses per capita, but has very few doctors per capita by international standards. The UK had 8.2 nurses and 3.0 doctors per 1,000 population in 2019, compared with OECD averages of 9.2 and 3.6 respectively.

Figure 6.6. Medical staff per 1,000 population for OECD countries in 2019

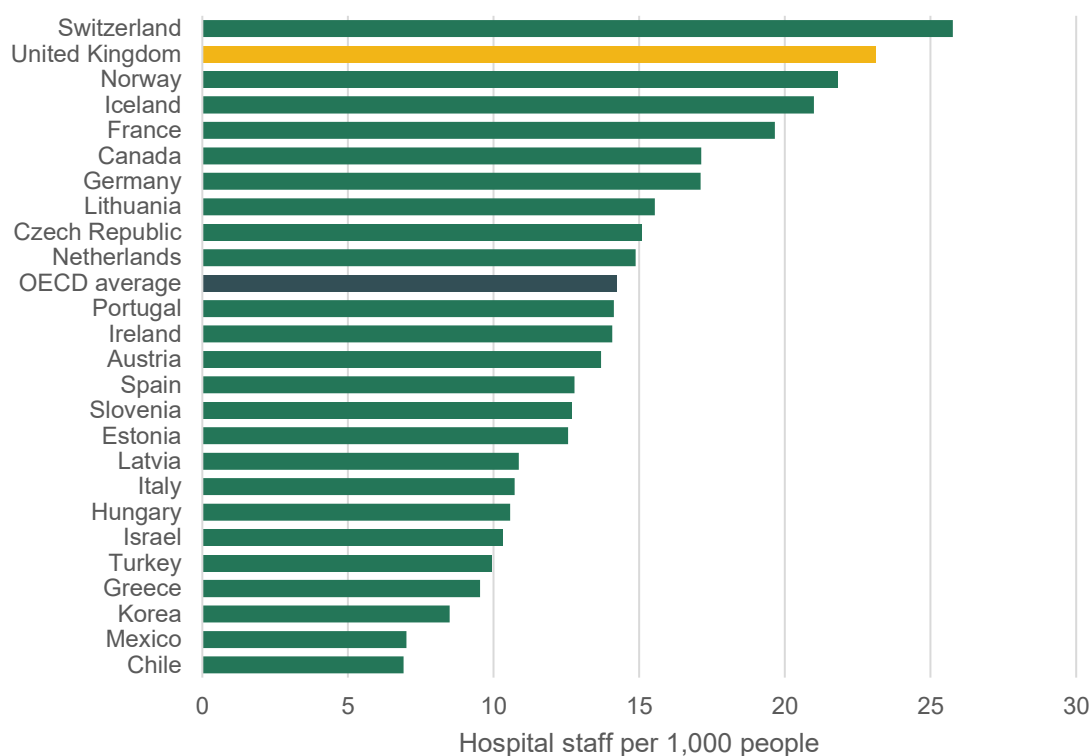


Note: OECD averages only include countries in each figure, which are those with available data.

Source: OECD Statistics' Health Care Resources (2021).

However, these differences may in part be due to differences in the composition of the healthcare workforce across different countries, and the way in which those staff are utilised. Figure 6.7 shows that the UK actually has a very high rate of hospital staff – 23.1 per 1,000 population compared with the OECD average of 14.2 per 1,000. This in part reflects definitional differences and the UK's reliance on nursing support workers (such as healthcare assistants or nursing associates, who perform many traditional nurse duties in the UK), who are not counted as nurses on the OECD definition. On a broader measure of nurse staffing, then, the UK may in fact have higher rates of nursing staff than the OECD average. The statistics could also reflect a greater number of hospital managers within the NHS, compared with other countries' health systems. This would not, however, explain the UK's relatively low number of doctors, though there is an increasing push to use nurse practitioners for care in the NHS that would have traditionally been provided by doctors (Health Education England, n.d.).

Figure 6.7. Hospital staff per 1,000 population for OECD countries in 2019



Note: OECD average only includes countries in the figure, which are those with available data.

Source: OECD Statistics' Health Care Resources (2021).

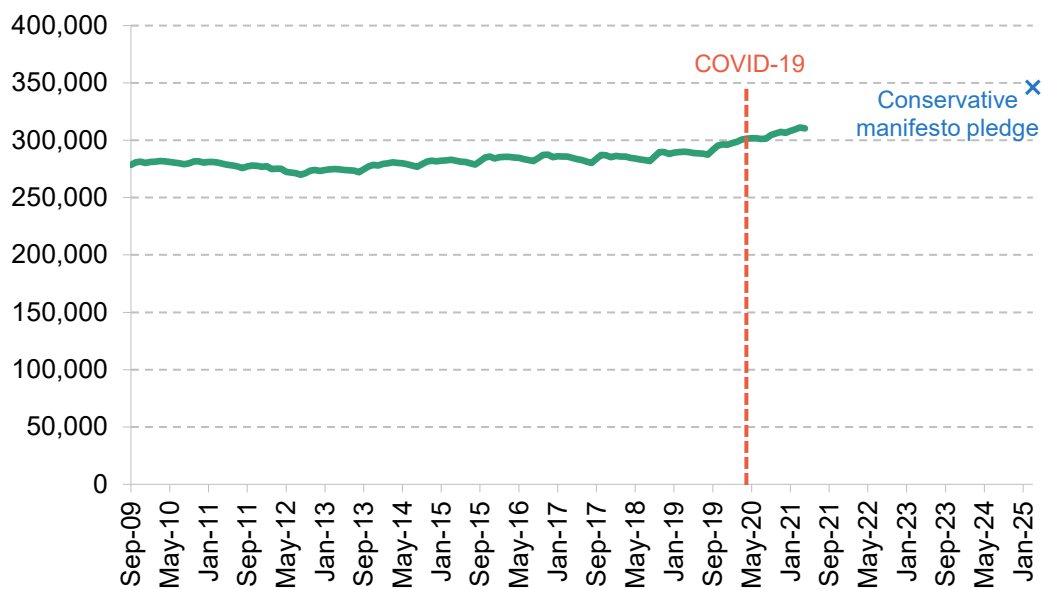
Trends in NHS staffing numbers

There have been longstanding concerns about staffing shortages in the NHS, in particular for nurses. In December 2019, there were 39,000 nursing vacancies, equivalent to a 10.7% vacancy rate (NHS Digital, 2021a).

As Figure 6.8 shows, the number of full-time-equivalent (FTE) NHS nurses and health visitors working in NHS Hospital and Community Health Services grew slightly over the 10 years prior to the pandemic, increasing from 278,000 in September 2009 to 292,000 in September 2019. This is despite hospital admissions, for example, increasing by 17% over the same period (NHS Digital, 2021b), suggesting that staffing numbers have not kept pace with hospital activity. The number of nurses working in GP practices has increased at a faster rate in recent years, from 14,000 in September 2015 (the first year for which consistent data are available) to 16,000 in September 2019.

As part of its 2019 general election manifesto, the government committed to increasing the numbers of nurses in the NHS in England by 50,000 by 2025, which would represent an increase of approximately 17%. While still early days, the government looks to be broadly on track to meet this target – assuming that recent increases in nursing numbers continue.

Figure 6.8. FTE NHS nurses and health visitors in NHS Hospital and Community Health Services



Note:

Nurses working in GP practices are not included as historical primary care workforce data are not consistent prior to 2015.

Source: NHS Digital's NHS Workforce Statistics (April 2021).

Although the number of nurses has remained relatively constant over the last decade, the composition has changed substantially. Between September 2009 and September 2019, the number of FTE adult nurses grew by 4.7% and the number of FTE children's nurses grew by a substantial 56.6%. But the number of FTE community health nurses fell by 13.9% and the number of FTE mental health nurses fell by 9.9%.

Around 15% of nurses in the UK were trained abroad, which is more than double the OECD average (Buchan et al, 2020). However, as Table 6.2 shows, the vast majority of new joiners to the nursing register in recent years are from the UK. The number of non-UK EEA/EU nurses coming to the UK has sharply declined over the last four years (Table 6.2), likely due to Brexit, and this has been accompanied by an increase in the number of EU-trained nurses leaving the NHS (Table 6.3).⁴ However, this has been mostly offset by an increase in non-European international nurses joining the NHS. For example, the number of new nurses joining from India has increased by 260% between 2016–17 and 2020–21, while the number from the Philippines has increased by 70%.

⁴ Data tables for years prior to 2016–17 are not available, but the available evidence suggests that the number and share of EU nurses was rising between 2012–13 and 2016–17, ahead of the referendum (NMC, 2017).

Table 6.2. Percentage of new nurses joining, by country of training

	UK	EEA/EU	Other
2016–17	79.7%	15.1%	5.2%
2017–18	93.4%	2.7%	3.9%
2018–19	91.1%	3.2%	5.7%
2019–20	87.2%	2.9%	9.9%
2020–21	84.6%	2.4%	13.0%

Source: Nursing and Midwifery Council's Registration Data Reports (2021).

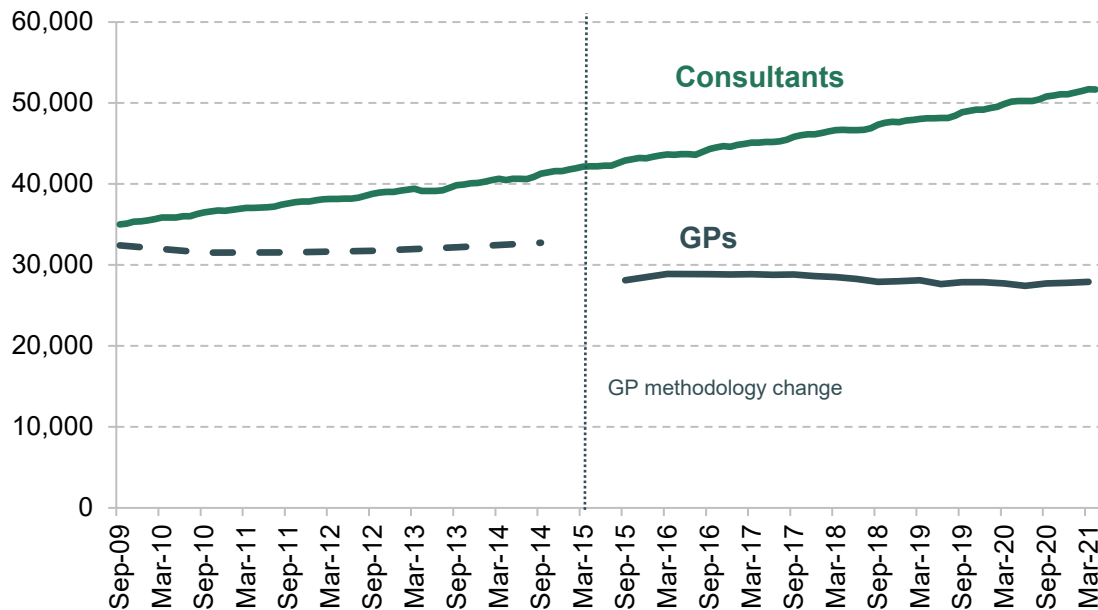
Table 6.3. Percentage of nurses leaving, by country of training

	UK	EEA/EU	Other
2016–17	91.7%	4.7%	3.6%
2017–18	88.5%	7.4%	4.1%
2018–19	88.6%	7.4%	4.0%
2019–20	88.5%	7.6%	3.9%
2020–21	88.5%	6.8%	4.8%

Source: Nursing and Midwifery Council's Registration Data Reports (2021).

There are also longstanding concerns about the size of the doctor workforce in England, particularly in primary care. Figure 6.9 shows how the number of FTE consultants and GPs has changed since 2009. While the number of consultants (who mostly work in hospitals) has grown consistently during this period, the number of GPs has grown at a slower rate, and perhaps even fallen. For example, between September 2015 and September 2019, the number of FTE consultants grew by 14% while the number of FTE GPs declined by 0.8%. Given that the population has been growing (and ageing) during this period, this represents a substantial decline in supply relative to demand for primary care. The Conservatives' 2019 manifesto promised 6,000 more doctors in general practice by 2024, which would represent an increase of more than one-fifth, but the lack of any progress so far suggests that it would now be a surprise if this target were met. Notably, the 'headcount' number of GPs is 34% higher than the FTE, reflecting the fact that 76% of GPs (and 90% of salaried GPs) work less than full time (NHS Digital, 2021c).

Figure 6.9. FTE consultants and GPs



Note: A change in the methodology for calculating GP numbers between September 2014 and September 2015 means that figures before and after that point cannot be directly compared. Consultants work in either hospitals or community healthcare settings. GPs do not include GPs in training.

Source: NHS Digital's NHS Workforce Statistics, NHS Digital's General Practice Workforce and NHS Digital's Appointments in General Practice.

Staff pay

Pay is a hugely important issue for the NHS and its workforce. About 45% of the NHS's budget is spent on pay (King's Fund, 2019), and any increase in pay reduces the size of the workforce that the NHS could afford without additional funding (from the government, or from other parts of the broader health budget). Pay will also be one important influence on how many hours staff want to work, their motivation and morale, how many staff leave the NHS and how attractive the NHS is to new domestic and international recruits.

As Table 6.4 shows, pay has been declining in real terms (that is, after adjusting for household inflation) for most NHS staff groups over the past decade.⁵ Between 2011 and 2021, real pay for consultants has fallen by 8.7%, for junior doctors by 4.1% and for nurses, midwives and health visitors by 4.8%. In Section 6.4, we discuss the ongoing pay pressures that the NHS faces, including the recent 3% pay increase, and how these relate to ongoing staffing and recruitment pressures.

⁵ Note that while we use the GDP deflator to calculate real-terms changes in health spending (in line with our broader approach to the public finances), we use CPIH as our inflation measure for calculating real-terms changes in staff pay, as this better captures changes in the purchasing power of those employees.

Table 6.4. Average FTE NHS pay by staff group, March 2021 prices

	March 2011	March 2016	March 2021	Change, 2011 to 2016	Change, 2016 to 2021	Change, 2011 to 2021
Consultants	£139,000	£129,000	£127,000	-7.1%	-1.8%	-8.7%
Junior doctors	£60,000	£56,000	£58,000	-6.7%	+2.8%	-4.1%
Nurses, midwives & health visitors	£41,000	£39,000	£39,000	-6.4%	+1.7%	-4.8%
Ambulance staff	£44,000	£42,000	£46,000	-3.7%	+9.7%	+5.7%
Scientific, therapeutic & technical staff	£45,000	£41,000	£42,000	-9.1%	+1.2%	-8.1%
Managers	£57,000	£54,000	£57,000	-5.9%	+6.1%	-0.2%
Senior managers	£88,000	£87,000	£87,000	-0.8%	-0.4%	-1.2%

Note: Average pay rounded to the nearest £1,000.

Source: NHS Digital's NHS Staff Earnings estimates to March 2021, NHS Digital's Monthly Workforce Statistics March 2021 and ONS's CPIH.

Hospital performance in England

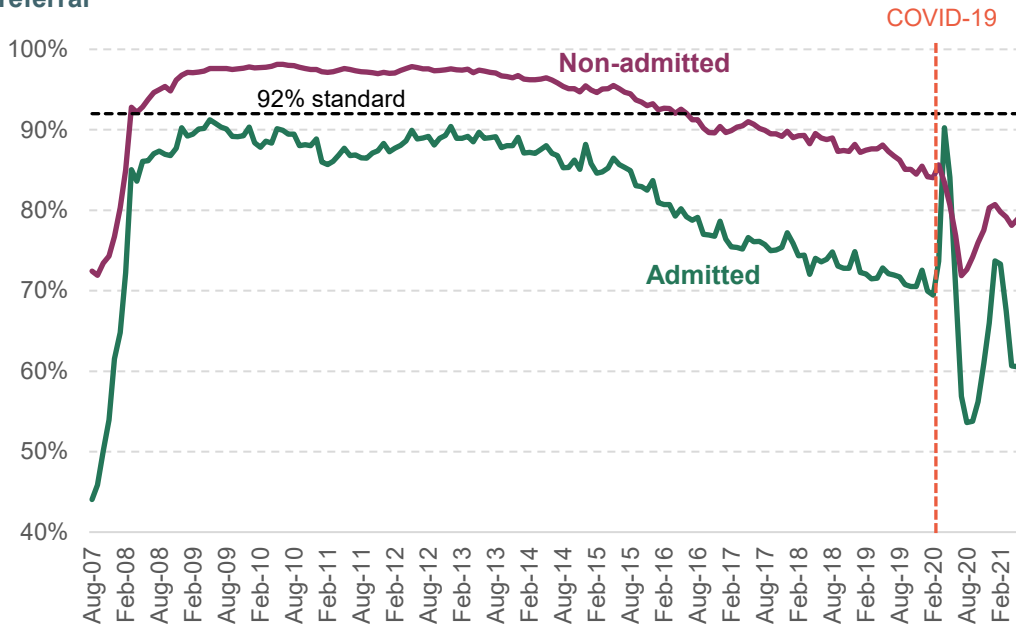
Pre-pandemic, the NHS was already struggling to keep up with demand for elective care and the waiting list had grown by more than 50% in the preceding five years, from 2.9 million people in February 2015 to 4.4 million in February 2020. Over the same period, the number waiting more than 18 weeks had more than tripled from 200,000 to 740,000. Figure 6.10 shows that performance against the NHS's constitutional standard – of at least 92% of people waiting no more than 18 weeks – had fallen from a peak of 91.2% in May 2009 to 69.5% in February 2020 for admitted patients, and from a peak of 98.1% in June 2010 to 84.0% in February 2020 for non-admitted patients. Both declines represent a fall in measured performance to levels not seen since early 2008.

Another important constitutional standard is that the waiting time in Accident & Emergency (A&E) from arrival to admission, transfer or discharge should be under four hours for at least 95% of people.⁶ Figure 6.11 shows that in the five years prior to the pandemic, this target has been steadily achieved for a lower percentage of arrivals to A&E, indicating a similar

⁶ The four-hour A&E target is expected to be dropped in the near future and replaced with a 'bundle' of measures (NHS England, 2021d).

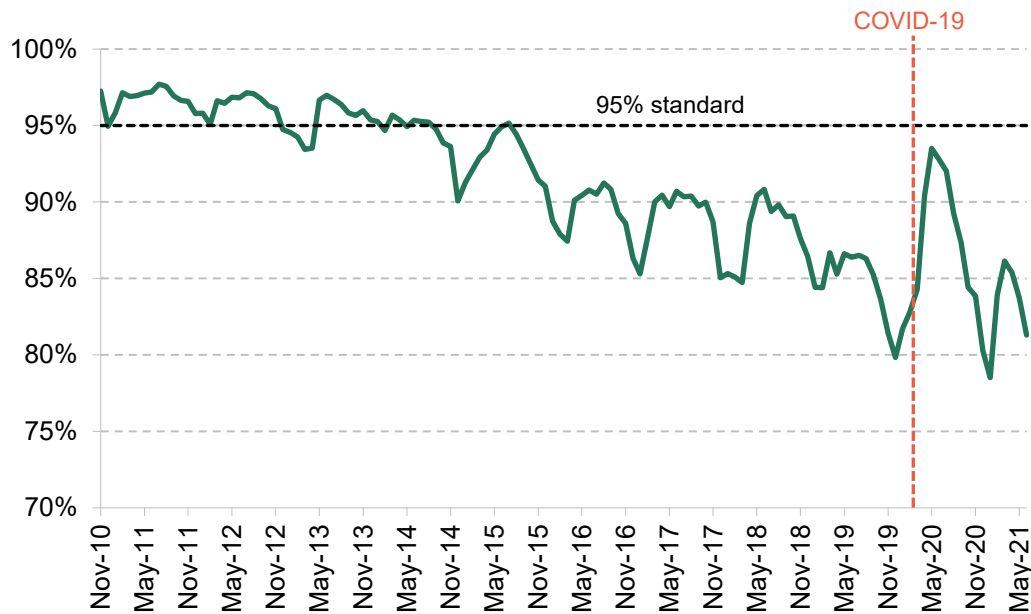
deterioration in performance to that seen for elective waiting times. In February 2015, 92.1% of arrivals were seen within four hours, but by February 2020 this was only 82.8%: so more than twice as big a proportion of arrivals in A&E in February 2020 were waiting for more than the four-hour benchmark than had been the case five years earlier.

Figure 6.10. Percentage of patients waiting no more than 18 weeks for treatment from referral



Source: NHS Digital's RTT Waiting Times Data.

Figure 6.11. Percentage of people waiting less than four hours in A&E



Source: NHS England's A&E Attendances & Emergency Admission Statistics (2021).

6.3 Pre-pandemic plans and pandemic funding

Pre-pandemic plans for NHS funding

In 2018, the then Prime Minister, Theresa May, announced a five-year funding settlement for the NHS that was to increase NHS England's resource budget in real terms by 3.4% on average per year.⁷ This was front-loaded, so grew by 3.6% per year for the first two years (2019–20 and 2020–21), then by 3.1% for the next two years (2021–22 and 2022–23) and then 3.4% in the final year of the settlement (2023–24). This amounted to an additional £33.9 billion in cash terms in 2023–24, relative to 2018–19, or an additional £20.5 billion in real terms (in 2018–19 prices, as announced at the time). On top of this was an additional £1.25 billion per year (in nominal terms) to cover increased NHS employer pension contributions (HMG, 2018).

This 3.4% increase was slightly below the 3.6% long-term average for UK health spending between 1949–50 and 2018–19, but it was substantially higher than the 1.2% average real-terms growth between 2009–10 and 2018–19. Importantly, though, this settlement was for the NHS England resource budget only, and did not include capital budgets. It also did not cover budgets for non-NHS bodies such as Public Health England and Health Education England which, as discussed earlier, have tended to see their funding squeezed both in real terms and relative to the NHS in recent years.

The 2019 Spending Review reaffirmed the five-year settlement and increased funding in a number of areas for 2020–21. This included a £150 million increase for Health Education England for continuing professional development and a £1.9 billion increase in capital budgets, of which £0.9 billion was for the manifesto promise of upgrading and building new hospitals (HMG, 2019).

However, the pandemic has blown these plans out of the water. In the next subsection we consider in detail the COVID-19 funding that the healthcare system has received and in Section 6.4 we discuss ongoing pressures facing the NHS – pressures which any new funding settlement will need to account for.

Additional funding during COVID-19

The government has spent huge sums during the pandemic, much of which has been used to support the NHS. (For a full breakdown of the government's COVID-19 response, see Chapter 5

⁷ Note that top-ups to the budget since, and lower inflation than was forecast in 2018 (as measured by the GDP deflator), mean that Theresa May's five-year settlement would, on the latest figures, amount to 3.9% average real-terms growth per year.

on the Spending Review.) DHSC has spent more on COVID-19 measures than all departments other than HMRC, which was responsible for income support schemes such as the Coronavirus Job Retention Scheme (furlough), discussed in detail in Chapter 9, and the Self-Employment Income Support Scheme. DHSC has spent £63 billion on COVID-19 support in 2020–21 and, as of September 2021, was planning to spend an additional £34 billion in 2021–22 (DHSC, 2021e).

Table 6.5 presents a breakdown of where this funding has been spent in 2019–20 and 2020–21 and where it is planned to be spent in 2021–22. For the rest of this section, we focus on the four largest areas of expenditure: Test and Trace, PPE, additional NHS funding and vaccines. Potential future ongoing expenditure for each of these areas, including more detailed cost breakdowns, is discussed in the next section.

An important caveat to all the following analysis is that it is very hard to track accurately how much has been spent by the government on different COVID-19 support measures. Figures often differ between different government sources, and there are often large differences between the amounts allocated and what is eventually spent. Indeed, as discussed in Chapter 5, departmental underspends have been extremely high since the onset of the pandemic. The following is our attempt to piece different government sources together, using the National Audit Office (NAO) figures as our preferred primary source.

Table 6.5. Estimated breakdown of COVID-19 additional expenditure (£ billion)

	2019–20 and 2020–21	2021–22
NHS	14.4	15.0
Test and Trace	13.5	14.2
PPE	13.0	2.1
Vaccines	2.9	0.7
Research		1.4
Infection control		1.3
Ventilators		0.9
Capital		0.6
Other		0.9

Note: For 2019–20 and 2020–21, we use actual expenditure where possible; otherwise we use budgets. For 2021–22, we use the latest available budgets. For research, infection control, ventilators, capital and other, we use estimated lifetime cost.

The NHS has also received large increases in direct funding on top of what was previously agreed in the long-term settlement discussed earlier in this section. The March 2020 Budget included an emergency response fund for public services, including the NHS, of £5 billion (HMG, 2020a). This fund rapidly grew, and in April 2020 the Chancellor announced £6.6 billion had been provided to the NHS alone (HMG, 2020b).

The NHS also received additional funding for particular COVID-19 programmes. This included increasing hospital capacity – £2.6 billion for the use of the private sector and £0.5 billion for Nightingale hospitals (DHSC, 2021b). £2.4 billion was also provided to replace NHS Trusts' lost income. Another £2.2 billion was provided for enhanced hospital discharge services. Funding was also provided to support other health services – dentists (£0.7 billion), community pharmacies (£0.4 billion) and hospices (£0.2 billion).

In total, in 2020–21, NHS England's resource budget was £144.1 billion (HMT, 2021) compared with a planned budget of £129.7 billion (HMT, 2020). We therefore estimate total COVID-19 expenditure on the NHS to be £14.4 billion in 2020–21. This is lower than other estimates of the increase in NHS funding due to at least £5 billion of underspend (DHSC, 2021b).

The November 2020 Spending Review included £3.0 billion in additional funding for the NHS in 2021–22 (HMG, 2020c). This included £1 billion to begin tackling the elective backlog, £500 million for the NHS workforce and to address waiting times for mental health services, and the remaining £1.5 billion to ease COVID-19 pressures. In March 2021, Matt Hancock, the then Secretary of State for Health and Social Care, announced £6.6 billion in new funding for the NHS over the first six months of 2021–22 (DHSC, 2021a). In September 2021, another £5.4 billion in new funding was announced for the second half of 2021–22 (DHSC, 2021e). This included £2.8 billion for COVID-19 costs and £1.5 billion for elective recovery, bringing the total additional NHS funding in 2021–22 to £15.0 billion. The rest of the announced increases in NHS funding, covering 2022–23 to 2024–25, are discussed in detail in Section 6.6.

NHS Test and Trace (NHST&T), the programme responsible for contact tracing and COVID-19 testing (in the case of the latter, alongside Public Health England), has been one of the largest areas of expenditure. In 2020–21, NHST&T spent £13.5 billion, compared with its allocated budget of £22.2 billion.⁸ The majority of this (77%, or £10.4 billion) was spent on testing, including £4.2 billion on mass testing and £3.1 billion on laboratories. The planned budget for NHST&T in 2021–22, as of May 2021, is £14.2 billion (NAO, 2021a).

⁸ £13.5 billion is equivalent to around £580 for every household in England.

Another large area of expenditure is PPE. Pre-pandemic, NHS Trusts sourced PPE individually or through the NHS Supply Chain, and spent about £0.15 billion per year on PPE. From May 2020, DHSC centralised its purchasing and distribution. DHSC's budget for PPE in 2020–21 was £15.2 billion of new money from the Treasury, with £13.8 billion on sourcing PPE and £1.4 billion on freight and logistics (NAO, 2020). As of the end of February 2021, £13.0 billion of this budget had been spent (NAO, 2021b).⁹ From August 2020 onwards, the Department stopped purchasing PPE and has started trying to cancel undelivered orders (DHSC, 2021c). The budget for PPE in the November 2020 Spending Review was set at £2.1 billion for 2021–22, enough to meet expected demand for PPE and maintain a four-month stockpile (HMG, 2020c).

The final large area of additional health spending has been on vaccines. Vaccine supply and production has been the responsibility of the Department for Business, Energy & Industrial Strategy (BEIS), while vaccine distribution has been the responsibility of DHSC and the NHS. In 2020–21, the Vaccines Taskforce spent £1.1 billion on vaccine procurement (NAO, 2021b) and signed contracts with vaccine manufacturers worth at least an additional £1.8 billion (DHSC, 2021d). The March 2021 Budget included an additional £0.7 billion for the Vaccines Taskforce in 2021–22 (HMG, 2021a). The lifetime costs for vaccine procurement were estimated to be £5.1 billion in total in March 2021 (NAO, 2021b). Figures for vaccine deployment are included within the NHS line of Table 6.5.

6.4 Ongoing pressures

In this section, we consider a number of ongoing pressures that the NHS faces, including direct COVID costs, catching up on missed activity, and staff and workforce issues. These pressures will determine how much additional funding the NHS will need, over and above what was agreed in the 2018 settlement. We therefore in each case provide a central scenario of how much funding might be needed to cope with the given pressure for the next three financial years. There is considerable uncertainty around such estimates. The focus of this analysis is once again the NHS in England, but similar issues apply in Scotland, Wales and Northern Ireland, and any increase in funding for the English NHS will affect the funding available to the devolved governments via the Barnett formula.

Direct COVID costs

We first consider the direct costs of COVID-19 to the NHS. This includes treating COVID-19 patients, infection control in healthcare settings, and vaccinations. In our central scenario, we assume that the number of COVID-19 cases falls rapidly year on year to almost zero in

⁹ £13.0 billion is equivalent to around £9,700 for each NHS England staff member (or around £11,600 for each member of clinical staff).

2024–25. However, the last 18 months have demonstrated how hard it is to forecast the spread of the virus, and so we additionally discuss potential costs if COVID-19 cases do not fall so rapidly.

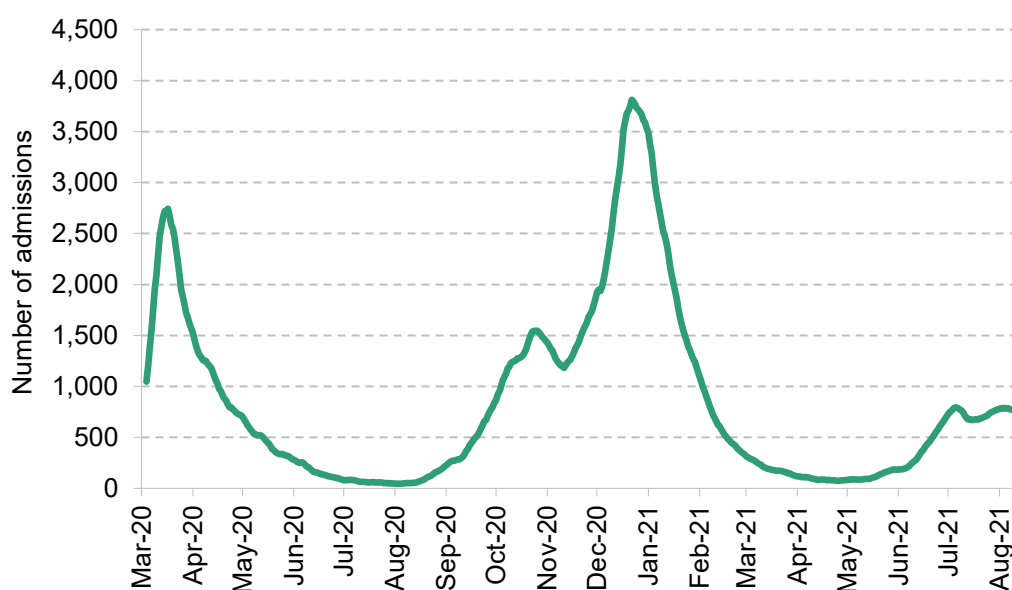
Treating COVID-19 patients

The NHS has already treated over 400,000 patients with COVID-19 in hospital. Not all of these patients will have been admitted for COVID-19 directly. Our analysis of hospital records suggests that between March 2020 and February 2021, 73% of those admitted with COVID-19 had a primary diagnosis of COVID-19. Even those COVID-19 patients admitted for other reasons will have put pressure on the NHS due to the necessary infection control measures, as we discuss later.

Even as COVID-19 case rates fall and the vaccination programme continues, the NHS will need to care for some COVID-19 patients – although the exact number is of course impossible to know.

Treating patients with COVID-19, particularly if they require intensive care or mechanical ventilation, is expensive. Although the exact costs are not known and are likely changing over time as treatment and processes improve, we can use past NHS costs for similar conditions as an estimate. In 2019–20, a long emergency stay in hospital for a patient with pneumonia cost the NHS between £1,623 and £8,348 on average, depending on the amount of treatment needed and the comorbidities of the patient (NHS England, 2021a).

Figure 6.12. Seven-day rolling average daily COVID-19 hospital admissions (England)



Source: gov.uk UK Coronavirus Dashboard. Figure accurate as of 2 September 2021.

In our central scenario, we assume that treating each COVID-19 admission costs £5,000. We assume that there will be 100 admissions per day in 2022–23, which is approximately the level it has been in between COVID-19 waves (and far below daily hospital admissions at the time of writing). We then assume this rate falls to 25 per day in 2023–24 and 5 per day in 2024–25. Under these assumptions, COVID-19 patients would directly cost the NHS £180 million in 2022–23, £46 million in 2023–24 and just £9 million in 2024–25. These are relatively small amounts. It should be noted, though, that even if there are very few (or zero) COVID-19 patients, for as long as the disease remains in general circulation there may well still be a need for infection control measures and additional PPE (which we discuss in the following two subsections).

The numbers of COVID-19 patients admitted to hospital in the coming years are, of course, impossible to predict accurately. What these approximate numbers suggest, however, is that, provided admissions do not reach what we have seen during recent COVID-19 peaks, the ongoing direct cost of COVID-19 patients in hospital will be relatively low: in the millions, rather than the billions. Even in a more pessimistic scenario, where the number of COVID-19 admissions remained at 500 per day, the cost – while more substantial – would only come to around £0.9 billion per year.

Infection control

Current infection control guidance requires hospitals to keep patients who have, or are suspected to have, COVID-19 separate from patients who do not. Additionally, healthcare staff who provide care for COVID-19 patients should not provide care for those without COVID-19 (PHE, 2021a). Staff are also required to change their PPE frequently, particularly when moving between different COVID-19 patients. This is important to prevent the spread of COVID-19 within hospitals, particularly since recent research suggests that 11% of COVID-19 hospital patients caught the virus in hospital (Read et al, 2021).

Infection control measures reduce the volume of treatment that the NHS can provide with the same number of staff and resources, and reduce the degree of flexibility available to Trusts in how they use their bed and staff capacity. PPE requirements for staff also reduce the amount of time available to spend with patients.

It is not clear how much infection control will cost the NHS, particularly as the numbers of COVID-19 patients and cases fall and infection control measures change. In August 2021, approximately 7.5–10% of the NHS's usual hospital beds were unusable due to infection control measures (Hopson, 2021). This suggests that infection control measures are currently significantly reducing the NHS's capacity, but this is likely to become less of a problem as the numbers of COVID-19 community cases and COVID-19 patients in hospital fall. But for as long

as COVID-19 remains a threat, infection control measures are likely to be required in some form.

Infection control has two consequences for the NHS's costs. The first is that the average treatment will be more expensive if clinical staff spend time changing and setting up PPE and other infection control measures. Even if staff only have to spend 20 minutes with PPE and infection control measures per 12-hour shift, this could reduce the amount of time that staff spend with patients by 3%, and thus increase the cost of providing a given amount of care by the same amount.

The second, and more important, cost is that infection control measures reduce bed and staffing capacity, and so make it more expensive for the NHS to increase volumes of treatment. This is especially true of some treatments, such as aerosol-generating dental procedures, which require dental surgery ventilation and downtime between patients (PHE, 2021b). It is also of particular concern in the face of a large and growing waiting list for elective care (discussed below). When some staff and beds are out of action, to return to 100% of pre-pandemic levels of activity requires more than 100% of pre-pandemic resources. Hospitals might need to open up closed wards, make greater use of agency, bank or locum staff, or make greater use of private sector capacity – just to get back to pre-pandemic levels of activity. This is likely to act to increase the marginal cost of an additional unit of treatment.

In our central scenario, we assume that infection control will increase the NHS's costs of hospital treatment by 3% in 2022–23, 2% in 2023–24 and 1% in 2024–25. This would cost £0.9 billion in 2022–23, £0.6 billion in 2023–24 and £0.3 billion in 2024–25.

This percentage increase in costs is higher, in the near term, than the Office for Budget Responsibility's estimate of 1.2%. Its estimate is based on its estimated effect of COVID-19 on economy-wide productivity, whereas we believe the health sector will be particularly affected relative to the rest of the economy. If the OBR's estimate is closer to the truth and infection control measures have a smaller effect on the NHS than we assume in our scenario, the corresponding cost figure would be smaller. If infection control measures increase costs by 1.2% (in line with the OBR's assumption), this would cost the NHS £0.4 billion per year. But, on the other hand, if infection control is more disruptive than in our central scenario, the costs could be substantially higher. A 5% increase in costs, for example, would cost £1.5 billion per year.

PPE

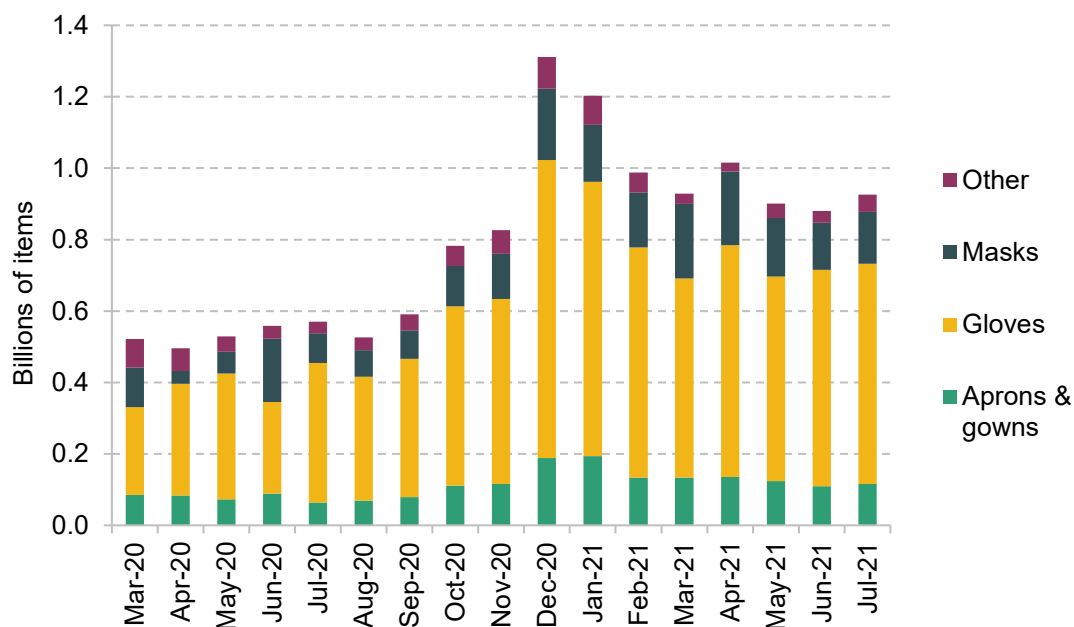
The NHS also needs to continue to purchase PPE. Figure 6.13 shows in more detail what PPE the government has distributed to health and social care providers since the onset of the pandemic. As of 10 June 2021, the UK has purchased 32 billion items of PPE, of which 11.7 billion have been distributed, 12.6 billion are centrally stockpiled in the UK and 8.4 billion

are not yet delivered, although some 2.9 billion items have been deemed not usable in medical settings and DHSC is cancelling some of the contracts for the undelivered PPE (Public Accounts Committee, 2021a) (DHSC, 2021c). The cost of purchasing PPE has thus far been £15 billion – equivalent to more than £11,000 per NHS employee – and suggesting an average unit cost of 45p, substantially higher than pre-pandemic prices (NAO, 2020). This high level of spending reflects the huge increases in unit prices during the pandemic as global demand soared: the unit price of respirator masks increased by 166% between 2019 and 2020, face masks by 258%, gloves by 519%, gowns and coveralls by 1,277% and body bags by 1,310% (NAO, 2020).

DHSC’s ‘reasonable planning basis’ suggests that it will need to use 11.7 billion items between June 2021 and May 2022 (DHSC, 2021c). If we assume that in total 15 billion items will be available from the stockpile, and the NHS uses 12 billion in 2021–22, then it will not necessarily need to purchase additional PPE in 2021–22.

However, it is likely that the government will want to maintain a larger stockpile of PPE than prior to the pandemic. The 2021 Budget suggests that the government wants to maintain a four-month stockpile (HMG, 2021a). In our central scenario, we assume this is based on expected 2021–22 usage and is therefore 3.9 billion items. This suggests that the government will need to purchase approximately 0.9 billion units of PPE in 2021–22 to maintain its stockpile.

Figure 6.13. PPE distributed by DHSC in England



Source: DHSC’s PPE Distribution (England) (2021).

Under our central scenario, we assume the NHS will use 8 billion items in 2022–23, 4 billion items in 2023–24 and 2 billion items in 2024–25. We assume that the unit price is 15p in 2022–23 and 10p from 2023–24 onwards. This would cost £1.2 billion in 2022–23, £0.4 billion in 2023–24 and £0.2 billion in 2024–25. However, prior to the pandemic, NHS Trusts spent about £0.15 billion per year on PPE, so this represents £1.05 billion, £0.25 billion and £0.05 billion in additional expenditure in each of the three years, respectively.

Maintaining a stockpile of PPE is not free (due, for instance, to the need for warehouse space), and the government was spending approximately £6.7 million per week on maintaining its stockpile in June 2021 (Public Accounts Committee, 2021a). We assume that cost is proportionate to stockpile size, which means the new stockpile would cost approximately £100 million per year to maintain relative to the pre-pandemic stockpile. The total additional cost of PPE would therefore be an estimated £1.15 billion in 2022–23, £0.35 billion in 2023–24 and £0.15 billion in 2024–25.

Vaccinations

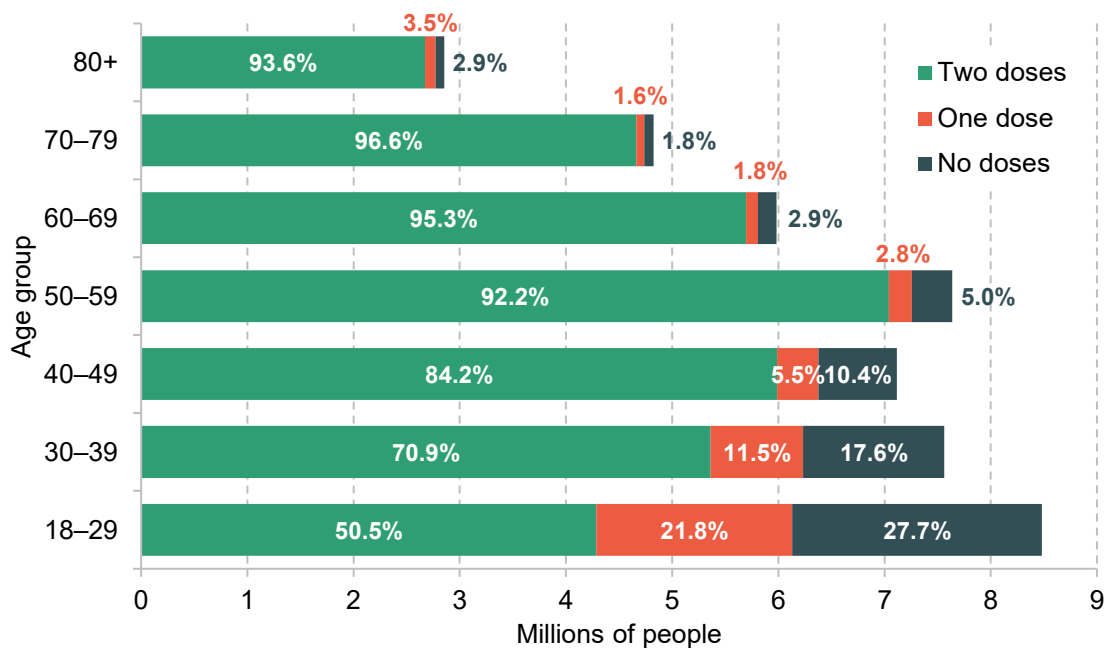
Another ongoing cost for the NHS is the continued vaccination programme. The government is currently planning to provide booster jabs for some groups from September 2021, though it has not yet published its full plan. This is likely to take place alongside an expanded winter flu vaccination programme. In this subsection, we consider the costs of vaccination for the whole of the UK, rather than just England, since vaccine procurement is managed at the UK level.

There are three vaccines currently in use in the UK – Oxford/AstraZeneca, Pfizer/BioNTech and Moderna. The UK government had orders for at least 100 million, 135 million and 17 million of each, respectively. At the time of writing, 91 million vaccine doses have been given (HMG, 2021b), which means that the UK still has 161 million (ordered) doses unused, of which another 10–15 million will likely be delivered as first and second doses.

This suggests that, depending on delivery times, the UK may not need to purchase additional doses for the booster programme. If it does need more, although the cost of procurement is not published as it is a part of commercial agreements, it would likely cost approximately £10 per dose (Public Accounts Committee, 2021b).

GP practices are currently paid £12.58 per dose of the COVID-19 vaccine that they deliver, 25% more than the fee for flu vaccines, £10.06 (NHS England, 2020a). It is likely that the booster programme will be delivered alongside the flu jab programme, potentially providing large efficiency savings. In our central scenario, we assume that GP practices will be paid £17.61, 75% more than the standard flu vaccine fee – but 22% less than the total of the current separate flu and vaccine fee – to deliver both the flu and COVID-19 vaccines.

Figure 6.14. Vaccine uptake in England by age group



Source: NHS England's COVID-19 Daily Announced Vaccinations 2 September 2021 and ONS's Mid-Year 2020 Population Estimates. Figures accurate as of 2 September 2021.

Under our central scenario, we assume that each winter the government will offer a booster vaccine to all health and social care workers, those aged 50 or over and those with underlying health conditions in the UK, similar to the standard winter flu programme. This represents approximately 31.8 million people (BBC, 2021b), and we assume that take-up will be 95%, which is similar to the current level for these groups in England, as shown in Figure 6.14.

The cost of delivery, assuming that 80% of these people would have received a flu vaccine anyway and everyone receives a flu vaccine at the same time as a COVID booster vaccine, would be £290 million per year. We have been unable to estimate transport and logistics costs, but it is unlikely that they would be substantially higher than for a normal flu vaccine programme. Under these assumptions, the government has no need to order additional vaccines. If it does need additional vaccines, perhaps because a new variant has appeared that the current vaccines are ineffective against, this would cost an estimated additional £300 million per year.

It is possible that the NHS will wish to provide booster vaccines to more than just the over-50s, the health and social care workforce, and the clinically vulnerable. Offering a booster vaccine each year to all adults would (assuming 85% take-up, and that none of the younger, non-clinically vulnerable adults receive or would have received a flu jab) increase costs of delivery to around £510 million per year. Purchasing additional vaccines for all adults (if that proved necessary) could cost approximately £480 million per year.

Long COVID

The term ‘long COVID’ can be used to refer to a number of conditions related to COVID-19. It includes experiencing COVID-19 symptoms between 4 and 12 weeks after infection (ongoing symptomatic COVID-19) and experiencing symptoms that develop during or after a COVID-19 infection that continue for more than 12 weeks and are not explained by other diagnoses (post-COVID-19 syndrome).

The current evidence is that long COVID affects many of those who have been infected with COVID-19. An ONS study between April 2020 and March 2021 found that 13.7% of people who tested positive for COVID-19 continued to experience symptoms for at least 12 weeks, compared with just 1.7% among the control group who were unlikely to have had COVID-19 (ONS, 2021a). 12% were still experiencing symptoms after 18 weeks. ONS survey evidence suggests that between 10 May 2021 and 6 June 2021, 1.5% of the UK’s population were experiencing self-reported long COVID (ONS, 2021b).

In the NHS’s plan for long COVID, it estimates that around 2.9% of people who had COVID-19 will subsequently need NHS support (NHS, 2021). At the time of writing, this suggests that this would be approximately 170,000 people in England (HMG, 2021b), though many were infected many months ago and may have already made a full or near-full recovery. After triage and screening of these people, the NHS estimates that 30–50% will need supported self-management, 18–30% could be supported in primary and community care settings, and 20–50% would need specialist treatment and rehabilitation.

The NHS is planning to spend £94 million on long-COVID services in 2021–22. An additional £30 million is allocated to supporting general practice. The National Institute for Health Research (NIHR) has also committed £50 million to long-COVID-related research (NHS England, 2021b).

The cost of treatments for long COVID are currently unknown, but we can use the average pre-pandemic cost of similar treatment to estimate potential costs. We estimate the initial appointment for each long-COVID patient will cost £200, similar to the cost for an initial outpatient appointment for respiratory medicine. We estimate the cost for patients supported in primary care will be £200, based on using six GP appointments. We estimate the cost for specialist treatment to be at least £1,000, based on the cost of two rehabilitation outpatient appointments in 2019. Assuming that 60% of patients are supported in a primary care setting, and 40% of patients need specialist treatment in 2021–22, we estimate the total cost of long COVID in 2021–22 would be £120 million, similar to the level of funding that the NHS has committed.

The cost of long-COVID services from 2022 onwards is harder to estimate, for three reasons. First, we do not know how many new people will be infected with COVID-19. Second, it is not clear to what extent vaccines will provide protection against long COVID. Third, it is not clear how persistent long COVID will prove to be, and how effective treatment will be. In our central scenario, we assume that there will be 80,000 people using the service in 2022–23 (a little less than half the number that we assume in 2021–22), 40,000 in 2023–24 and 20,000 in 2024–25. This implies a cost of £60 million in 2022–23, £30 million in 2023–24 and £14 million in 2024–25.

Even under more pessimistic assumptions, long-COVID costs would remain small relative to the other direct costs of COVID-19. For example, if the cost of treatment is twice our central scenario's assumptions (£400 for each initial outpatient and for each set of GP appointments, and £2,000 per specialist treatment), and the number of affected people is also twice as high (5.8% of those with COVID-19, rather than 2.9%), long COVID would still only cost the NHS a cumulative £0.4 billion over the three-year period.

Note that all of this analysis only considers the direct costs of long COVID for the NHS, and does not include any other costs to the exchequer from, for instance, higher rates of disability benefit receipt or lower tax payments if long-COVID sufferers are forced to reduce their hours of work or drop out of the labour force entirely.

Test and Trace

The ongoing costs of Test and Trace depend heavily on the course of the pandemic, which will determine both the number of tests conducted and the number of positive tests and consequent volume of contact tracing that is required. But even if the virus recedes quickly, it is likely that the government will want to maintain some testing capacity.

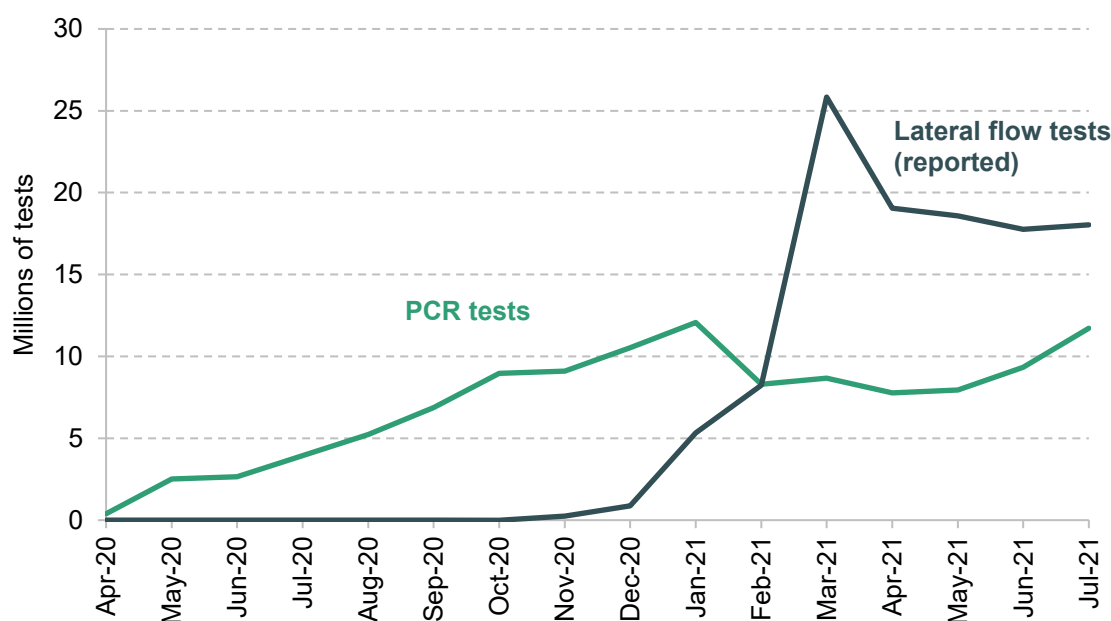
Figure 6.15 shows the monthly number of COVID-19 tests conducted in England since the onset of the pandemic. Between 20 April 2020 and 31 March 2021, 79.3 million PCR tests were conducted and we estimate that each PCR test cost £72, excluding transport and logistics costs (NAO, 2021a). The cost of each lateral flow test is harder to estimate, as many of them are not registered if they are negative, but we estimate they cost £14 each, excluding transport and logistics costs – which is within the £5–30 reported by the *Financial Times* (FT, 2020). This is likely to be an overestimate if Test and Trace had purchased stocks of tests in 2020–21 that had yet to be distributed.

In our central scenario, we assume that the unit costs of both PCR and lateral flow tests fall by 25% from 2022–23 due to efficiency savings as manufacturing is scaled up and competitive forces drive prices down. We also assume that demand for both types of test will fall dramatically as community transmission of COVID-19 falls. In particular, we assume that

demand for testing falls by 75% each year from 2021–22 onwards. This would mean that the costs associated with testing would fall to 19% of their 2021–22 level in 2022–23 (£2.5 billion), 5% in 2023–24 (£0.6 billion) and 1% in 2024–25 (£0.2 billion). We then assume that all other Test and Trace costs fall at the same rate. Under these assumptions, total Test and Trace spending would be approximately £2.7 billion in 2022–23, £0.7 billion in 2023–24 and £0.2 billion in 2024–25.

However, these costs would be higher if unit costs do not fall and/or demand for testing decreases more slowly over time. For example, if unit costs remained constant (rather than falling by 25%) and demand for testing only fell by 25% each year (rather than 75%), Test and Trace would cost £10.7 billion in 2022–23, £8.0 billion in 2023–24 and £6.0 billion in 2024–25. This illustrates the sensitivity of the future costs of Test and Trace to the future cost of and demand for testing, which will in turn be affected by the future course of the pandemic.

Figure 6.15. Monthly number of tests conducted in the UK



Note: The figures for lateral flow tests represent only those that were recorded; the true number of tests conducted is likely to be much higher.

Source: gov.uk UK Coronavirus Dashboard.

Missed activity and waiting lists

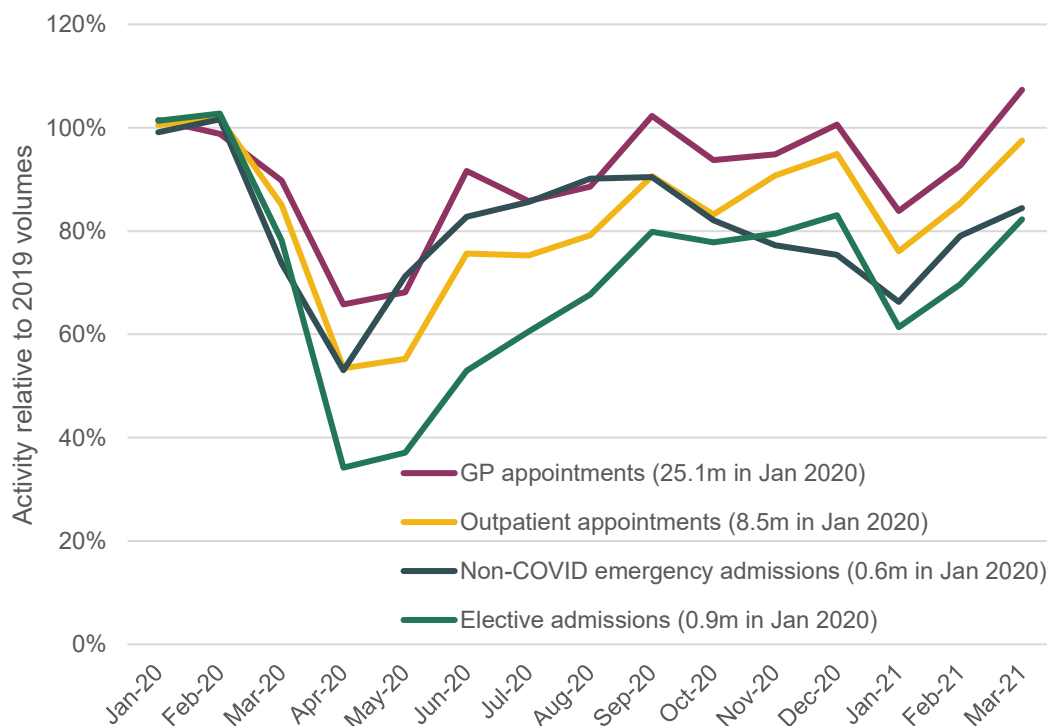
As well as the direct costs imposed by the coronavirus, the NHS faces substantial challenges in recovering from disruption to non-COVID care.

Missed activity

Figure 6.16 shows monthly hospital admissions, outpatient appointments and GP appointments in 2020 and 2021 compared with their 2019 levels. All four types of care saw large reductions, particularly during the first wave (March to May 2020), but elective activity was particularly affected, falling by 50% during this period relative to 2019. Non-primary-COVID emergency hospital admissions were less affected, but still fell by 34%. Outpatient appointments (in-person and remote) fell by 35%, mainly because many in-person appointments moved to remote appointments, as discussed in a later section. GP appointments were the least affected, only falling by 25%, at least in part because of a successful switch to telephone appointments. Notably, GP appointments in March 2021 were above the level at the same point in 2019.

Table 6.6 presents estimates of the volume and cost of missed activity in the first year of the pandemic (between March 2020 and February 2021). It shows that the NHS provided at least £10 billion less of non-COVID treatment during the pandemic. This means that the huge increases in NHS spending during the pandemic discussed earlier actually understate the true amount spent on the response to COVID-19, as the NHS not only spent more but also provided substantially less non-COVID care in that time.

Figure 6.16. Monthly NHS activity compared with 2019



Note: Non-COVID emergency admissions refer to those where COVID-19 is not the primary diagnosis.

Source: NHS Digital's Hospital Episode Statistics.

Table 6.6. Volume and estimated cost of missed activity, March 2020 to February 2021

Care type	Reduction in activity compared with 2019	Estimated cost of missed activity at 2019 prices
Elective inpatient hospital admissions	3.5 million	£4.8 billion
Emergency inpatient hospital admissions	1.5 million	£2.5 billion
Outpatient hospital appointments	20.2 million	£3.3 billion
GP appointments (estimated)	32.9 million	£1.1 billion
Total	58.1 million	£11.7 billion

Source and note: Hospital volumes calculated from NHS Digital's Hospital Episode Statistics. The unit cost of each type of hospital treatment is taken from NHS England's National Schedule of NHS Costs 2019–20. GP appointments calculated from NHS Digital's Appointments in General Practice, only including attended appointments and adjusting for incomplete coverage. The unit cost for GP appointments is taken as £33 from the Personal Social Services Research Unit's Unit Costs of Health & Social Care (2019), excluding qualification costs.

Volumes of activity fell for a number of reasons. Much elective and outpatient activity was cancelled by hospitals to free up capacity to deal with COVID-19 patients. Patients also changed their behaviour and were less likely to seek care due to fears about infection or because they wanted to 'protect the NHS' from becoming overburdened. There were likely also some genuine reductions in demand due to changes in lifestyles because of the pandemic (Burn, et al., 2021).

This is not to say that the NHS will have to provide all of that care in the months and years ahead. Not all patients will return: some will have died since the start of the pandemic, others may have received treatment privately, while some will have had their ailments resolved (or have chosen to live with these health issues) without ultimately requiring hospital treatment. But some – perhaps most – of this missed activity will need to be done by the NHS eventually.

One way to measure the pressure that this puts on the NHS is the estimated cost of the activity that will need to be done. In our central scenario, we assume that 70% of missed elective patients will return, as will 10% of emergency patients, 70% of outpatient appointments and 50% of GP appointments. This implies that the NHS will need to catch up on £6.5 billion worth of activity in the coming years. As we shall discuss in the subsection after the next, it may well cost even more than this.

Waiting lists

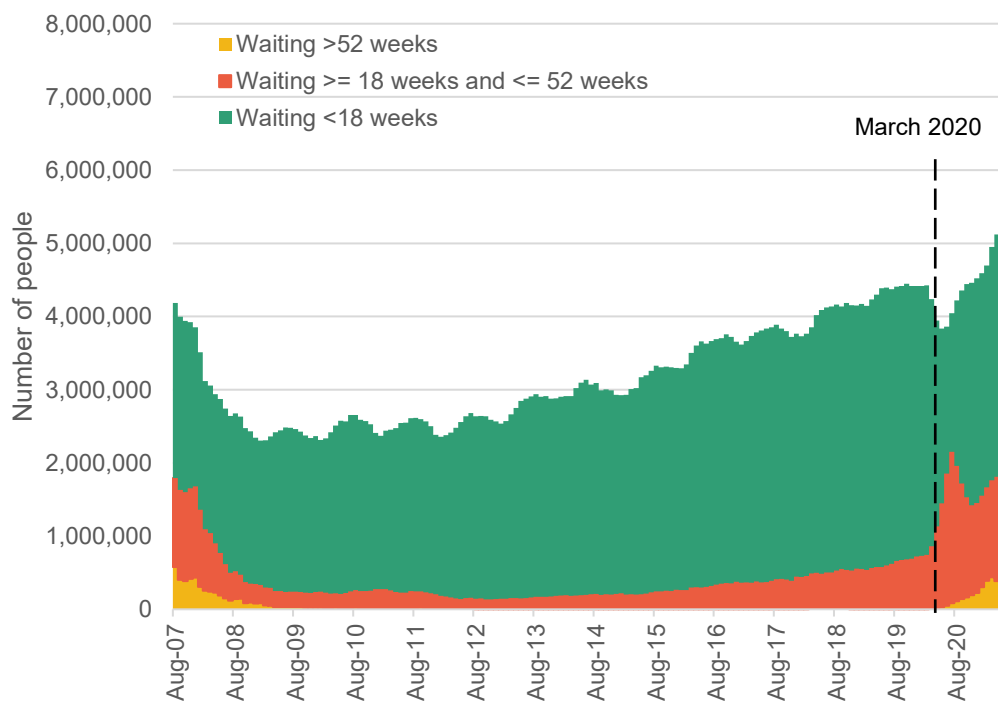
As discussed in a recent IFS Observation, this missed activity is an important determinant of how NHS waiting lists will evolve in the coming years (Stoye, Warner, & Zaranko, 2021). As Figure 6.17 shows, the number of people waiting for care has risen from 4.4 million in February 2020 to 5.5 million in June 2021. There has been a particularly sharp increase in the number of

people waiting for longer than a year, from 1,600 to almost 305,000 in the same period, though this is a reduction from its peak of 436,000 in March 2021 (suggesting that the NHS is now focusing on treating the patients who have been waiting longest). Nonetheless, this rapid increase in waiting lists has caused widespread concern over the scale of the NHS ‘backlog’.

However, looking just at the headline increase in the size of the waiting list understates the true effect of the pandemic. Waiting lists have grown by just over 1 million since February 2020, while, as Table 6.6 showed, there were at least 3 million fewer elective admissions and 20 million fewer outpatient appointments in just the first 12 months of the pandemic. This is because while treatment volumes fell, so did the number of people being referred onto waiting lists. We estimate that between March 2020 and May 2021, there were over 7 million fewer referrals than would have been expected if levels were the same as in 2019. This is smaller than the total amount of missed activity because some pathways involve several treatments, such as an elective admission and follow-up outpatient appointments.

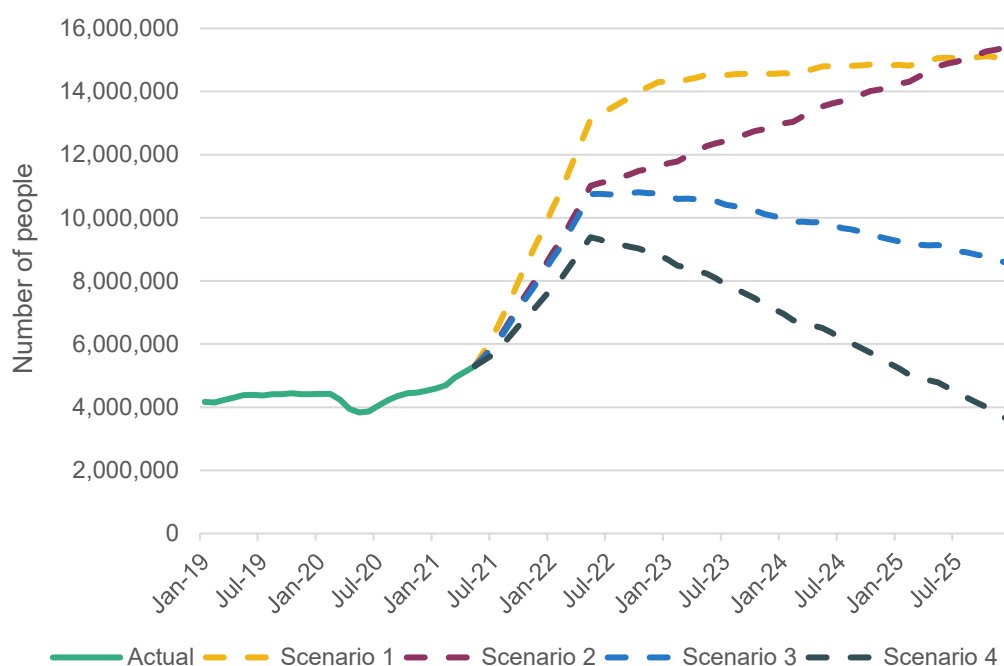
As many of the patients who missed activity, or missed being referred onto waiting lists, return, waiting lists are expected to grow rapidly. This is what led to Mr Javid’s warning in July that waiting lists could grow to 13 million people (BBC, 2021c). Figure 6.18 presents several illustrative scenarios for how the waiting list could evolve over the coming years.

Figure 6.17. NHS waiting lists in England



Source: NHS Digital’s RTT Waiting Times Data.

Figure 6.18. Illustrative waiting list scenarios



Source: Stoye, Warner and Zaranko (2021).

Each depends on a number of different assumptions. Scenario 1 shows what would happen if 80% of those who missed referral returned and NHS capacity was 90% of 2019 levels in 2021 and 2022, and 100% of 2019 levels from 2023 onwards. Scenario 2 shows what would happen if 65% returned and NHS capacity is limited to 95% of 2019 levels. Both scenarios show that if the NHS cannot increase capacity above 2019 levels, the waiting list will remain much higher than pre-pandemic, and could continue to grow.

Even if the NHS can boost capacity above 2019 levels – and therefore start to treat the stock of patients who missed care during the pandemic – it will still take a long time to return to pre-pandemic waiting list lengths. In scenario 3, 75% of patients return and NHS capacity is 100% of 2019 levels in 2021 and 2022 and 105% from 2023. In this case, waiting lists peak at just under 11 million through 2022 and then start to decline slowly. Scenario 4 shows that if only 70% return and the NHS can achieve 105% capacity in 2021 and 2022 and 110% capacity from 2023, waiting lists will return to pre-pandemic levels by 2025. For more detail and discussion of these scenarios and the outlook for waiting lists, see Stoye, Warner, & Zaranko (2021).

Since those scenarios were published, there has been one further month of waiting list data released. In June 2021, the number joining the list rose to its highest level since the beginning of the pandemic, reaching 24% above June 2019 levels. This is consistent with some of the ‘missing’ patients starting to return. If 70% of those patients return over the next 12 months (as in Scenario 4 above), we would expect the number of people joining the waiting list to reach approximately 125% of 2019 levels.

The number of people receiving NHS treatment after a spell on the waiting list has now almost returned to its 2019 level (it is at 99% of its 2019 level), a massive increase compared with 86% in May 2021 and 64% in January 2021. The number of people leaving the list, which also includes those leaving for other reasons, has also risen to its highest level since the pandemic began: 94% of 2019 levels (up from 66% in January 2021). If this rapid increase in NHS capacity can continue in the coming months – so that the NHS not only reaches its pre-pandemic capacity but actually exceeds it – waiting lists are more likely to follow trajectories similar to scenarios 3 and 4, with a fast increase in the number waiting over the next 12 months as missed patients return, followed by a consistent fall in the list as supply exceeds demand and the backlog is slowly eliminated.

The time and cost necessary to catch up

The previous two subsections showed the same problem – missed care during the pandemic – from two different angles. This leads to two related questions: ‘how long will it take to catch up?’ and ‘how much will it cost to do so?’.

As discussed, the estimated cost of the missed activity we assume will return in our central scenario is £6.5 billion.¹⁰ However, this could easily be an underestimate of the ‘true’ cost. Infection control measures and staff burnout could both increase average costs of activity. But what really matters here is the marginal cost – the cost of each additional procedure. It is likely that the marginal cost will rise as the NHS tries to catch up on the missed activity and volumes exceed 100% of their 2019 levels. The NHS may need to build new hospitals, hire new staff, make greater use of agency, bank or locum staff, or use private sector capacity. We therefore think that £6.5 billion represents a conservative (i.e. low) estimate of the potential cost of catching up.

Time also matters here. The government cannot simply give the NHS an additional £6.5 billion and just expect it to catch up overnight. Increasing capacity, particularly when the system has been under so much pressure, will take time: there are material constraints to how much can be achieved in the near term. The former NHS England Chief Executive, Lord Stevens, has suggested that with enough resources, the NHS could catch up within three years (FT, 2021), but this could prove to be a relatively optimistic estimate.

To reflect the fact that ramping up activity will be highly challenging, and will likely lead to an increase in unit costs and/or require investment in infrastructure, we also allow for an additional £1 billion in our central scenario, over the three years. That would be roughly equivalent to a 15% increase in unit costs. Combined with the £6.5 billion of missed activity (under our

¹⁰ In our central scenario, we assume that 70% of missed elective patients will return, as will 10% of emergency patients, 70% of outpatient appointments and 50% of GP appointments.

assumptions about the share of missing patients who return), that would mean £7.5 billion over the three years, or £2.5 billion per year. We estimate that with this additional funding, provided that the NHS manages to return capacity this year (2021–22) to close to 2019 levels, the NHS would be able to eliminate the backlog of missed care and return waiting lists to their pre-pandemic levels by 2025. This would be similar to scenario 4 in Figure 6.18.

This estimate is highly uncertain and sensitive to the assumptions made. The eventual costs of catch-up could be significantly higher or lower than £2.5 billion per year. If fewer patients return than we assume in our central scenario, costs would be correspondingly lower. For example, if only 50% of missed elective and outpatient activity returns (rather than the 70% assumed in our central scenario), none of the missed emergency and GP activity is ever carried out, and our unit costs assumption is left unchanged, the estimated annual cost would fall to £1.6 billion. But in the opposite direction, increasing patient volumes could lead to a larger increase in unit costs than we have assumed in our central scenario. If the same number of patients return as we assume in our central scenario, but unit costs increase by 30% rather than 15%, it could cost £2.8 billion per year to catch up. And if the NHS quickly bumps up against capacity constraints (from staffing, physical space, or something else) then it could take a lot longer than three years to clear the backlog.

Historical precedents

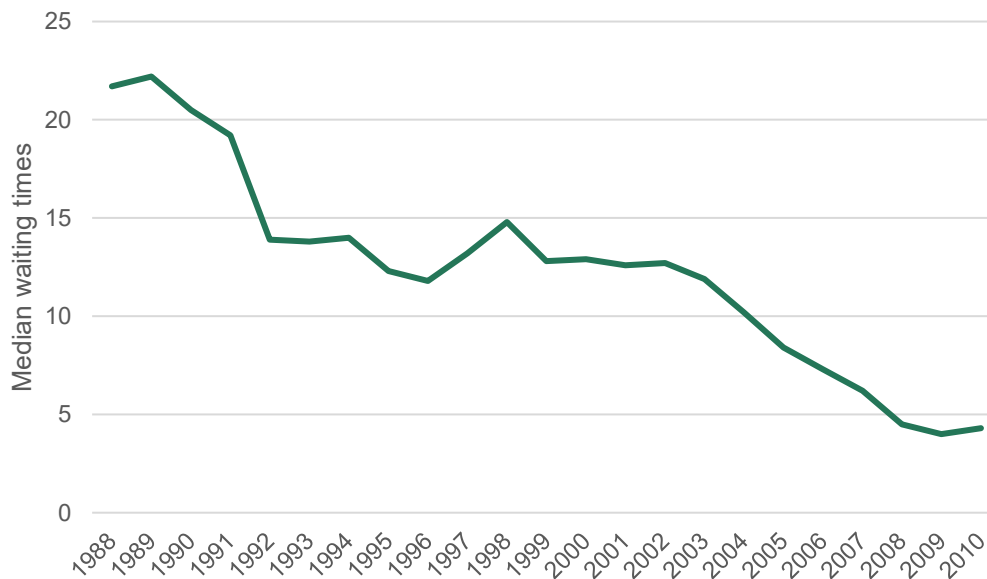
This is not the first time in its history that the NHS has had to deal with long waiting lists. This subsection draws heavily from Geoffrey Rivett’s history of the NHS (Nuffield Trust, n.d.) and Richard Murray’s recent piece on lessons from the 2000s for the King’s Fund (Murray, 2021).

The current waiting times definition was introduced in 2007, which means that we cannot directly compare current levels to the past. The data show, however, that waiting lists were also high in the early 2000s and the 1990s. Figure 6.19 shows median wait times for inpatient care between 1988 and 2010. This only measures the time between an admission decision being made by a consultant and actual admission, rather than the current definition which is from initial referral (from a GP or hospital consultant) to the end of treatment (and therefore captures the length of the entire treatment pathway rather than the subset covered by the older definition). On this definition, the median waiting time fell from more than 20 weeks in the late 1980s to below 5 weeks by 2010.

Waiting times fell sharply between 1989 and 1992, and then broadly flatlined for the next decade. Labour’s third of five key election pledges in the 1997 general election was to cut NHS waiting lists, but it took several years for median waiting times to start falling, which they then did steadily from 2002 onwards. Health funding grew rapidly during this period, by an average of 6.6% per year in real terms between 1997–98 and 2006–07, compared with 3.8% between

1988–89 and 1997–98.¹¹ The number of nurses and midwives grew by 14% over the period and the number of doctors and dentists grew by 48%. But as Richard Murray has cautioned, ‘it’s easy to put the waiting times success of the 2000s down to rapid increases in spending and staff. But this ignores the concurrent changes in productivity that also made an important contribution’.

Figure 6.19. Median waiting time (weeks) for inpatient activity, 1988–2010



Source: Department of Health’s Inpatient and Outpatient Waiting Times March 2009/10.

The NHS also went through huge transformations during the 2000s. In Geoffrey Rivett’s words, ‘In no previous decade had such a succession of Ministers, new policies, White Papers and restructurings hit the NHS’. This included the introduction of Primary Care Trusts and Foundation Trusts, the introduction of Payment by Results, and increased use of the private sector and performance targets. An aggressive waiting times targets policy was coupled with the ‘terror’ of strong sanctions for poorly performing hospital managers and regular publication of waiting times for each hospital. This was successful in reducing waiting times in England (Propper, Sutton, Whitnall, & Windmeijer, 2008). Under the right conditions, the NHS can – and has – cut waiting times dramatically. But given the number of changes and reforms during the period, it is difficult to draw neat and convincing lessons for the present day.

One important lesson, though, is that it takes time to increase capacity and cut waiting lists. The median waiting time for inpatient activity only started to fall in 2003, six years after Labour’s

¹¹ Note, though, that UK health spending grew at an average rate of 6.7% per year between 1990–91 and 1993–94, a period when waiting times were also falling.

election win and three years after the publication of their NHS plan. This was despite funding in real terms increasing by a massive 7.8% in 2000–01, 8.7% in 2001–02 and 8.3% in 2002–03, before an even bigger increase of 10.8% in 2003–04. And despite funding growth slowing down after 2005–06, median waiting times continued to fall. Funding and waiting times need not move concurrently. This points to a broader lesson that can be drawn from the experience of the past few decades: funding is not the only thing that matters.

During the 2000s, health funding grew at a rate that seems unlikely to be achievable in the coming years without large tax increases: indeed, at the same time as announcing substantial increases in NHS spending in the April 2002 Budget, the then Chancellor Gordon Brown also announced increases in the rates of employee and employer National Insurance. This means that increases in productivity are going to be even more important than they were in the 2000s. The discussion now turns to potential savings and increases in productivity from the pandemic.

Potential savings

As we have shown above, the pandemic is likely to increase costs both directly and indirectly for the NHS in the coming years. However, it may also present several opportunities for savings.

The first potential saving is that excess deaths reduce demand for public services. For example, in March 2021, the OBR estimated that excess deaths would lower government state pension spending by £0.6 billion in 2020–21 and £0.9 billion in 2021–22 (OBR, 2021a). We estimate that the deaths attributed to COVID-19 during this period could save the NHS at least £0.2 billion per year between 2021–22 and 2024–25.¹² This assumes that those who died were average hospital users conditional on their age and sex, and does not adjust for the different types of treatment that patients of different ages require. In reality, those who died during the pandemic are likely to have been above average in terms of their clinical severity, and so are likely to have also been above-average users of NHS services. This saving also only includes hospital inpatient admissions and outpatient appointments, so there are likely to be additional savings from primary care, prescription costs, mental health and community healthcare services. This is therefore a very conservative estimate of the savings to the NHS.

The pandemic has also forced the NHS to change how it operates. Some of these changes will have been for the better and will remain even as the crisis ends. Even in April 2020, NHS England was encouraging NHS Trusts that the crisis was an ‘opportunity to “lock-in” beneficial changes that we’ve collectively brought about in recent weeks’ (NHS England, 2020b). The

¹² We calculate the average cost of inpatient and outpatient hospital activity for each age–sex combination in 2019 using NHS Digital’s Hospital Episode Statistics. We then sum the cost of hospital usage per year over the expected remaining lifespan for each age–sex group using ONS’s National Life Tables. We then multiply this by the number of people who died from COVID-19 in each age–sex group using ONS’s Weekly Provisional Figures on Deaths Registered in England and Wales, multiplying by the percentage of total COVID-19 deaths that were in England.

beneficial changes it listed included ‘enhanced local system working’ and ‘new technology-enabled service delivery options such as digital consultations’. Some of the changes to how services operated during the COVID-19 emergency – such as greater generalism among hospital consultants, or changes to workforce ratios – could provide important lessons for the future. While it is easy to focus exclusively on the (many) adverse effects of the pandemic, there may also be some eventual ‘upsides’ for the health service.

We now consider the potential for cost savings for the NHS from digital consultations. We do not consider the impacts of this on quality of care, as this has been discussed substantially elsewhere (Horton & Jones, 2020), nor potential cost savings to patients from reduced travel, nor potential savings from the fact that digitalisation could reduce the number of missed appointments if it improves flexibility and convenience for patients.

Prior to the pandemic, about 80% of GP appointments took place face-to-face, with most of the remainder by telephone. However, from March 2020, more than 40% of GP appointments have been via telephone. There is no evidence that the fraction of video appointments has increased, and it remains less than 1% of all GP appointments. It is not clear to what extent this could save the NHS money. The available evidence suggests that pre-pandemic, telephone triages with GPs were cheaper than face-to-face appointments because they tend to be shorter, but many telephone appointments still result in subsequent face-to-face appointments (Curtis & Burns, 2019), therefore reducing the potential for cost savings.

Unlike primary care, there is seemingly the potential for substantial cost savings from remote outpatient appointments. In the year before the pandemic, less than 4% of outpatient hospital appointments took place remotely. This increased to 27% in the first year of the crisis. In 2019–20, the average cost of an outpatient attendance was £132.63 if it was in-person, but just £87.12 if it was remote (NHS England, 2021a). This does not include outpatient appointments where procedures took place which, for obvious reasons, cannot be conducted remotely.

If the NHS maintains the February 2021 proportion of remote appointments, 28%, we estimate this could save the NHS £1.0 billion per year, if the total number of outpatient appointments returned to pre-pandemic levels. In practice, it is likely that the proportion of remote outpatient appointments will fall somewhat, and that the cost saving will be smaller than estimated due to the types of appointments that can and cannot be conducted remotely. We therefore estimate that remote outpatient appointments could save the NHS £0.5 billion per year.

Staffing pressures

Burnout and pressure

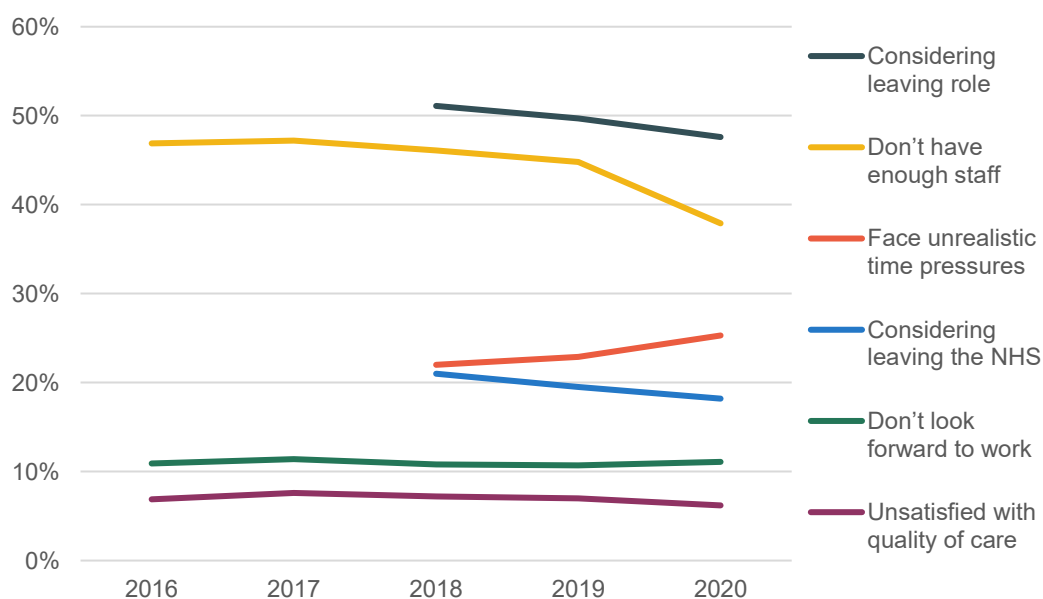
There has been widespread concern about the pressure faced by NHS staff during the pandemic. NHS Providers report that 92% of Trusts are concerned about staff well-being, stress and

burnout following the pandemic (NHS Providers, 2021). The well-being of staff can affect the capacity of the NHS in three interrelated ways. First, it may cause staff to leave the NHS or healthcare sector entirely. Second, it may cause staff to reduce the number of hours they can work, or cause them to take more sick leave. Third, it may reduce the productivity of staff when at work. All of these effects have the potential to increase the workload and pressure on staff who remain, potentially intensifying pressures if suitable replacements cannot be found.

The most representative measure of NHS staff well-being is the NHS Staff Survey. Figure 6.20 presents responses to selected questions from the annual NHS Staff Survey for 2020 and several preceding years. The responses to the 2020 survey took place in October and November 2020. For most of this period, the number of COVID-19 patients in hospital was rising, but had not yet exceeded the peak of the first wave as would happen in January 2021. This is important for putting the responses from front-line staff into context.

Perhaps surprisingly, the results of the survey do not suggest that there has been an across-the-board loss of morale amongst NHS staff. Staff are much more likely to report that they face unrealistic time pressures. But only slightly more do not look forward to work, and fewer staff are considering leaving their role or the NHS. Considerably fewer staff report that their organisation does not have enough staff and slightly fewer staff are unsatisfied with the quality of care they provide. Nonetheless, the levels of the negative responses are concerning – almost half of staff report considering leaving their role and a quarter report facing unrealistic time pressures.

Figure 6.20. NHS staff survey results



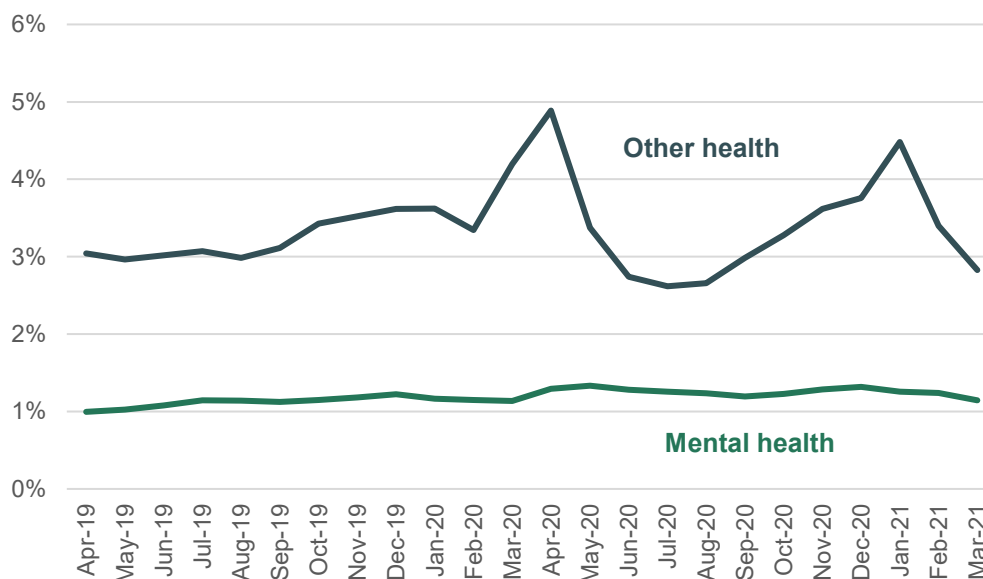
Note: 2020 survey was undertaken in October and November.

Source: NHS Staff Survey 2016–20.

There are differences between staff with different pandemic experiences. Staff who worked on COVID-19 wards during the pandemic are more likely to report that they want to leave their job, but less likely to report that they want to leave the NHS, compared with those who did not work on COVID-19 wards. Of course, there will be other differences between staff who did and did not work on COVID-19 wards, and we do not know what their intentions were before the pandemic, so the differences we now see might not be due to the pandemic.

Medical unions have also surveyed their staff members on the effects of the pandemic. The Royal College of Nursing's 2020 survey (conducted between May and June 2020, also including private hospitals) found that 36% of nurses were thinking about leaving the profession, but only 27% reported having felt the same way in 2019 (RCN, 2020). 58% of nurses reported that staff morale had worsened compared with prior to the pandemic, and only 13% reported that it had improved (NHS Pay Review Body, 2021). The British Medical Association (which represents doctors) has also frequently surveyed its members. In February 2021, 51% of respondents reported suffering from depression, anxiety, stress, burnout, emotional distress or other mental health conditions, of whom 80% reported that it was worse than pre-pandemic. 51% reported that their current level of health and well-being was worse than during the first wave, compared with just 15% who reported it was better (BMA, 2021). This suggests that even when hospitals are under less direct pressure from COVID-19 patients, the pandemic continues to have strong (and worsening) effects on well-being.

Figure 6.21. Percentage of FTE days lost to sickness



Source: NHS Digital's NHS Sickness Absence Statistics March 2021.

Another source of information about staff well-being is staff sickness rates. Figure 6.21 shows the monthly percentages of FTE days lost to mental-health-related sickness and to all other forms of sickness. Prior to the pandemic, mental health was responsible for approximately a quarter of all staff sickness absence, and caused an average of 1.13% of all days to be missed. This rose to an average of 1.25% during the pandemic. However, this may underestimate the true effect of COVID-19 if staff decided to take fewer sick days due to the urgent nature of the pandemic – which is partially supported by the lower sick rates for other health in between the waves of the pandemic.

In 2020–21, the NHS’s pay bill was approximately £45.6 billion (NHS Digital, 2021d). In 2019–20, 4.5% of FTE days were lost to staff sickness (NHS Digital, 2021e). We therefore estimate that a 1% increase in staff sickness rates would cost the NHS approximately £21 million per year. In our central scenario, we assume that the pressures from the pandemic will increase staff sickness by 12.5% in 2022–23 relative to pre-pandemic, which is equivalent to an increase in mental-health-related sickness of 50% (though the pandemic may cause an increase in other forms of illness too). We then assume that this falls to 5% in 2023–24 and close to 0% thereafter. This would cost the NHS £0.25 billion in 2022–23 and £0.1 billion in 2023–24.

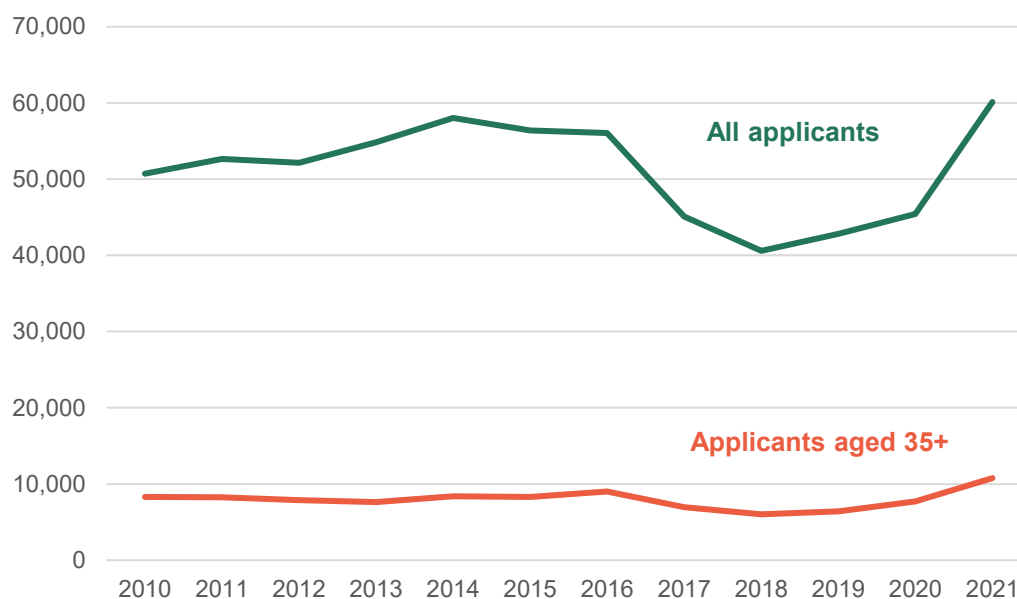
We do not quantify the other two potential costs of staff burnout – reduced on-the-job productivity and the requirement to hire new staff (at potentially higher wages if agency or temporary staff are needed) to replace staff who have decided to leave.

Recruitment

A key component of the nursing labour force is the supply of new nurses. It has been proposed that the high-profile role of the NHS during the crisis will encourage more people to join healthcare professions. Indeed, the number of people applying to nursing courses through the Universities and Colleges Admissions Service (UCAS) rose by 40% from 42,820 in 2019 to 60,130 in 2021 (Figure 6.22).

However, this is likely not only due to the pandemic, as the government also reintroduced nursing bursaries for students starting courses from September 2020. In fact, the current level of nursing applicants is not much higher than it was in 2016, the last year when the government offered nursing bursaries. In addition, public sector jobs are plausibly seen as more attractive during a recession because of their greater job security and pay stability during an economic downturn.

Figure 6.22. Number of applicants to nursing courses



Source: UCAS 2021 Cycle Applicant Figures.

Another impact of COVID-19 will be on the recruitment and retention of international staff, and in particular of nurses. In the short term, travel restrictions and other disruption to international travel may make it less attractive for nurses to travel to the UK. Even if COVID-19 recedes in the UK, this may remain a problem if COVID-19 continues to spread in the home countries of international recruits.

In the long term, the pandemic may change the relative attractiveness of the UK to international recruits. It may be that the pandemic experiences of their home countries will discourage them from emigrating, or it may be that governments decide to restrict nurse emigration in order to build domestic health capacity.

Pay

The pandemic has heightened the issues around NHS staff pay, against a backdrop of declining average real pay for both doctors and nurses over the last 10 years (as discussed in Section 6.2). The devolved governments of Northern Ireland, Scotland and Wales have all given bonuses to health and social care staff of between £500 and £735 for full-time workers for the important role they played during the pandemic. And pay is going to be an important determinant of the staffing resources available to catch up on the care that was missed during the pandemic.

As part of the pay-setting process, the government submits a proposal to independent pay review bodies, which also receive evidence from medical unions and other NHS bodies. The pay review bodies then make a recommendation on changes to pay bands, accounting for a range of factors,

including the need to recruit and retain staff, the level of NHS funding and the government's broader pay policy. The government then decides whether to accept these recommendations. This decision does not fully determine pay growth in the NHS as staff also experience pay increases as they move within and between pay bands.

In July 2021, the pay review bodies announced that they were recommending pay increases of 3% for most NHS staff and, separately, some doctors, backdated to April 2021. This was substantially higher than the government's initial proposal of 1% – which Mr Hancock stated was 'what we think is affordable' – and substantially lower than the proposals of many unions representing medical staff.

In 2020–21, the NHS's pay bill was approximately £45.6 billion (NHS Digital, 2021d). The NHS's long-term plan had assumed 2.1% pay growth (NHS, 2019), so we estimate that annual growth of 3% would cost the NHS approximately an additional £0.41 billion in 2021–22.

In our central scenario, we assume that due to similar pressures on the NHS, the pay review bodies continue to recommend a 3% pay rise in the coming years. Relative to the long-term plan, this will therefore cost the NHS an additional £0.8 billion in 2022–23, £1.3 billion in 2023–24 and £1.8 billion in 2024–25.

Indirect effects of COVID-19

We now consider two indirect effects of COVID-19. First is the effect that the pandemic and associated government public health measures have had on people's mental health. Second is the effect that the economic disruption and associated recession will have on people's mental and physical health.

Mental health

The pandemic and associated policy measures (including distancing guidelines, social restrictions and stay-at-home measures) have worsened mental health among UK adults. On one general measure, average mental health worsened by 8% at the start of the pandemic (Banks, Xu, & Fancourt, 2021). This has partially recovered, but in September 2020 was still 2% below pre-pandemic levels. Even more concerning, the number of adults experiencing moderate to severe depressive symptoms was 21% in early 2021, compared with 10% before the pandemic (ONS, 2021c).

At the same time as an increase in mental health problems, the pandemic has made it harder to access mental health services. The number of depression diagnoses has fallen during the pandemic (ONS, 2021d), as part of the wider disruption to primary care discussed earlier. Similarly, the number of people in contact with adult mental health services fell at the beginning of the pandemic, and has yet to recover to pre-pandemic levels (NHS Digital, 2021f). Figure

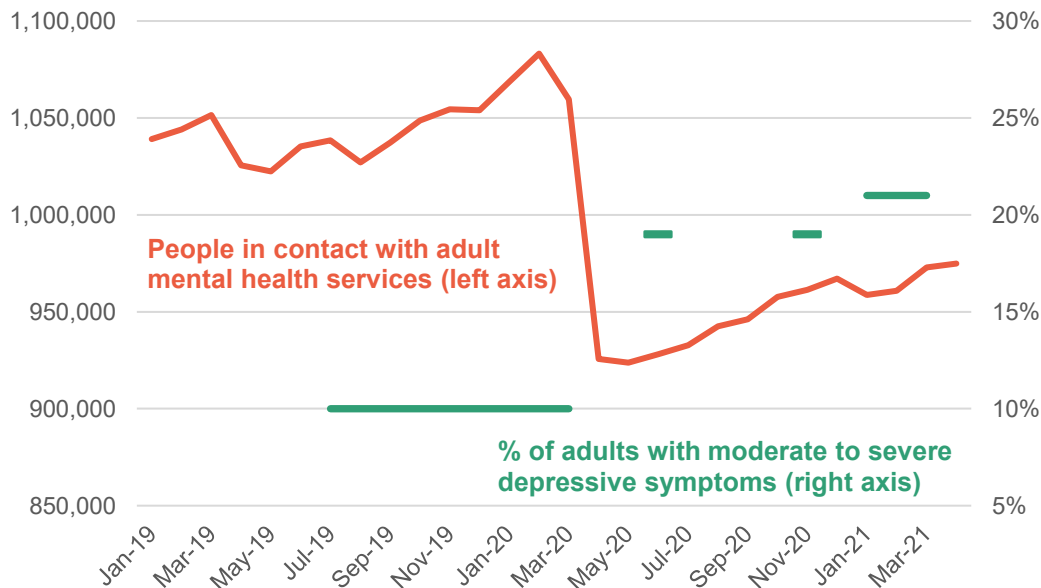
6.23 compares the decline in the number of people in contact with adult mental health services with the proportion of adults reporting depressive symptoms since the beginning of 2019.

These factors both suggest that demand for mental health services will rise in the coming years, though there is large uncertainty about the size of the increase. The Health Foundation, for example, has estimated that referrals to dedicated mental health services for adults and children could increase by an average of 11% per year for the next three years (Kraindler et al, 2020).

The Centre for Mental Health has estimated that 8.5 million adults and 1.5 million children will need mental health support over the next three to five years because of the pandemic (O'Shea, 2021). In 2019–20, 2.1 million adults and 0.8 million children were in contact with mental health services (NHS Digital, 2021g). Even if only 20% of those 10 million people were referred to mental health services, this would increase demand by about 14% for the next five years.

In 2019–20, the NHS spent £8.0 billion on mental health services (NHS England, 2021c). Although there is much uncertainty about how much demand will increase, under our central scenario we assume that increased demand for mental health services will cost the NHS £1 billion in 2021–22, 2022–23 and 2023–24 (broadly in line with a 14% increase in demand).

Figure 6.23. Change in access to and need for mental health services



Source: NHS Digital's Mental Health Services Monthly Statistics (2021), ONS's Coronavirus and Depression in Adults in Great Britain (2021).

Recessions

The pandemic has had a huge impact on the economy, with GDP falling by 19.5% in the second quarter of 2020, before partially recovering in the third and fourth quarters, and then falling again by 1.6% in the first quarter of 2021 (ONS, 2021e). The main way that this is likely to worsen health is through rising unemployment and falls in household earnings (Banks, Karjalainen, & Propper, 2020). However, because of the labour market interventions (such as the furlough scheme) discussed in Chapter 9, the unemployment rate has only risen from 4% in the first quarter of 2020 to a peak of 5.2% in the fourth quarter of 2020 (ONS, 2021f) – far less than we might have expected given the scale of economic dislocation.

Therefore, although the economic shock has been larger than the financial crisis, it is far from clear that the consequential recession-related health shock will be as large. The clearest effect of the financial crisis on health was for mental health (Margerison-Zilko et al., 2016). That could also be the case this time, as pandemic-related economic disruption has primarily affected younger and lower-earning workers, who might have had more precarious mental health to begin with. However, recessions can also have impacts on physical health, and the 1.2 percentage point increase in unemployment could increase the prevalence of chronic conditions, such as cardiovascular disease and diabetes, by about 2% (Janke et al., 2020). The evidence suggests that these effects would take several years to emerge, however, and so we do not estimate the costs associated with any such increase.

Pre-existing pressures

Prior to the pandemic, the NHS was already facing a number of pressures. This was reflected in the fact that the NHS was already struggling to meet its waiting time and other performance targets pre-COVID. Central among these pressures is the UK's ageing population.

In 2018, there were 1.6 million people aged 85 or older in the UK. The ONS projects that this will rise to 1.9 million by 2025, 2.1 million by 2030, 2.6 million by 2035 and 3.0 million by 2043. Similarly, the number of pension-age people per 1,000 working-age people is predicted to rise by about 22% from 295 to 360 by 2043, and the number of annual deaths is predicted to rise by a third over the same period (ONS, 2019). This will put massive pressure on the NHS as the elderly use by far the most health services per capita, and much of lifetime healthcare spending is concentrated at the end of life.

Pre-pandemic, the OBR projected that to keep pace with demographic pressures, public spending on health would need to rise from 7.6% of national income in 2022–23 to 9.0% of national income by 2067–68. This excludes any other cost pressures (associated with, for example, new medical technologies and treatments); once those are included, the OBR projected that health spending would need to rise from 7.6% to 13.8% of national income by 2067–68 to

keep pace (OBR, 2018). Even in the nearer term, the OBR projected that health spending would need to rise to 8.0% of national income by 2025–26 and 8.8% by 2030–31. Previous IFS and Health Foundation research shows that this means health spending will need to increase 3.3% per year in real terms over the 15 years to 2033–34 just to keep up with demographic pressures (Charlesworth et al, 2018).

6.5 What might these pressures mean for NHS funding?

In the previous section, we considered a number of pressures that the NHS faces in coming years. Here, we summarise what those pressures might mean in terms of additional funding requirements over the next few years. In the next section, we compare these estimates with the latest government funding announcement.

Table 6.7 summarises our estimated costs of each pressure over the next three years relative to the existing five-year settlement. That is, it provides our estimates of how much additional funding could be required to deal with the various pressures on the NHS as a direct result of the pandemic and the knock-on consequences it has had. These estimates are, of course, highly uncertain, and different assumptions would lead to different figures. But they provide an indication of the sort of sums that might be required.

Under all the assumptions of our central scenario, therefore, we estimate that the NHS faces pressures of £9.8 billion in 2022–23, £6.9 billion in 2023–24 and £6.2 billion in 2024–25. The cost falls over time due to our assumption that the prevalence of COVID-19 declines over time, and therefore the direct impacts are smaller, though this is partially offset by the rising pay bill. We also estimate that the NHS could achieve pandemic-related savings of £0.7 billion per year, potentially reducing the net pressure to £9.1 billion in 2022–23, £6.2 billion in 2023–24 and £5.5 billion in 2024–25. That would be equivalent to 6.4% and 4.1% of pre-existing plans for the NHS England resource budget in 2022–23 and 2023–24, respectively.

An important conclusion of this analysis is the quantification of the likely relative cost of different pressures in our central scenario. COVID-19 patients, vaccinations and long COVID are unlikely to cost the health service more than £1 billion per year. PPE, Test and Trace, and infection control are likely to have high costs initially, but these should decline quickly assuming the number of COVID-19 cases falls away. The cost of catching up on missed activity and mental health demand are more likely to remain for the whole period. In the case of staff pay rises, costs will rise significantly over time as the cumulative gap between 3% annual pay growth and 2.1% growth widens.

The estimates also show that even if prevalence of COVID-19 falls to zero (and so there is no need for Test and Trace, and no costs associated with the treatment of COVID-19 patients), the NHS would also still face substantial cost pressures from the ongoing mental health impacts of the pandemic, the prevalence of long COVID, the likely need for future pay rises, and the costs of catching up on missed care.

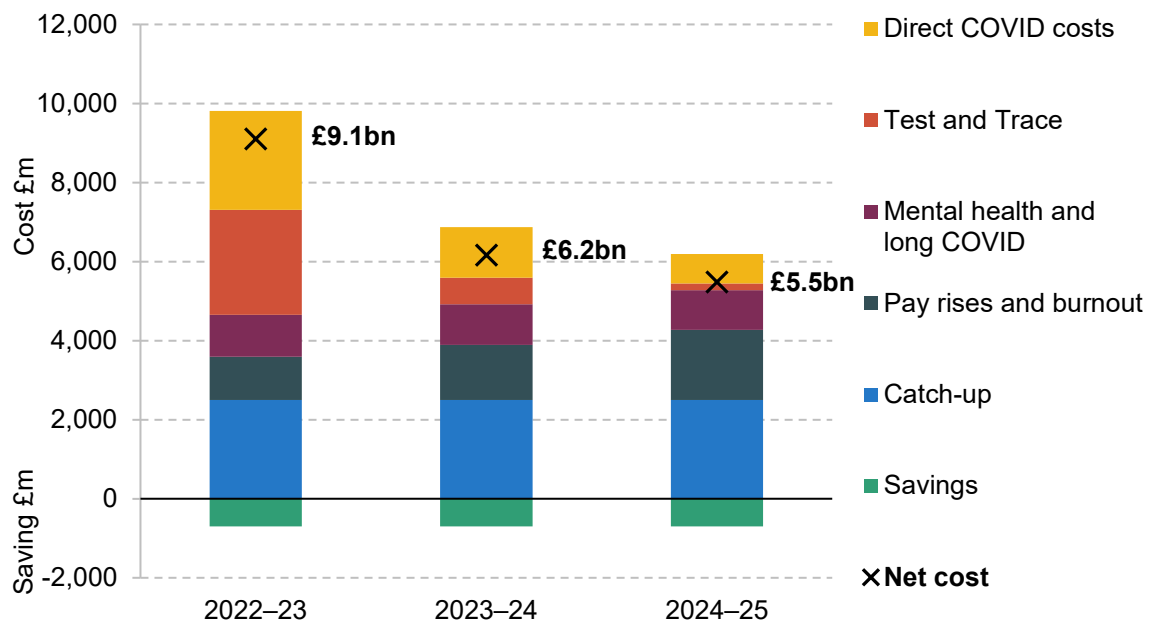
Table 6.7. Our central scenario for new NHS pressures (£m, nominal terms)

£ million	2022–23	2023–24	2024–25
COVID-19 patients	180	50	10
Infection control	880	590	290
PPE	1,150	350	150
Vaccinations	290	290	290
Long COVID	60	30	10
Test and Trace	2,660	670	170
Mental health	1,000	1,000	1,000
Catching up on missed activity	2,500	2,500	2,500
Staff burnout	250	100	0
Pay rises	840	1,290	1,770
Total additional expenditure	9,810	6,860	6,190
Mortality savings	200	200	200
Telemedicine savings	500	500	500
Total savings	700	700	700
Net additional expenditure	9,110	6,160	5,490

Note: All figures are estimates and are highly sensitive to the underlying assumptions made – see the text for details. Figures are rounded to the nearest £10 million, and may not sum due to rounding.

Source: Authors' calculations using all sources in Section 6.4.

Figure 6.24. Our central scenario for new NHS pressures



Note: Direct COVID costs are COVID-19 patients, PPE, infection control and vaccinations.

Source: Authors' calculations using all sources in Section 6.4.

These estimates are broadly similar to those produced by other organisations. In July 2021, the OBR estimated that pandemic-related pressures on health spending could be £7 billion per year between 2022-23 and 2024-25, with a small decline each year (OBR, 2021b). Our total estimated cost is only slightly higher than this, despite including several areas not considered by the OBR, but is more front-loaded.

In November 2020, the Health Foundation, in response to the Spending Review, estimated that total spending pressures for DHSC would be £11 billion in 2022-23 and £10 billion in 2023-24 (Kraindler et al, 2020). In August 2021, the Nuffield Trust estimated that NHS Trusts, a subsection of expenditure we have examined, face overspends of at least £4.7 billion in 2022-23 and £4.2 billion in 2023-24 (Nuffield Trust, 2021). In September 2021, NHS Confederation and NHS Providers published a joint report estimating that NHS Trusts would incur an additional £4.6 billion of costs in 2022-23, and estimated that they could require around £5 billion for other pressures, taking the total needed to £10 billion (NHS Confederation and NHS Providers, 2021). In short, there is wide agreement that the NHS faces substantial challenges and that meeting them will require additional funding of at least several billion per year.

6.6 The government's September 2021 announcement

On 7 September, the Prime Minister announced the government's 'Build Back Better' plan for health and social care (HMG, 2021c). This included an NHS recovery plan, adult social care reform and increased taxation to fund these changes. In this section, we first analyse the announced increases in NHS funding and then consider whether these will be enough to meet the pressures we outlined in Section 6.5.

What was announced?

The announcement included new resource (day-to-day spending) budgets for DHSC and NHS England. The headline increases to the DHSC budget were £11.2 billion in 2022–23, £9.0 billion in 2023–24 and £10.1 billion in 2024–25 (a total of £30.3 billion over the three years). Just over half of this money, £15.8 billion over the three years, is planned to go directly to NHS England, leaving £14.5 billion for everything else. A further £5.4 billion is earmarked for adult social care, which leaves £9.1 billion for other DHSC programmes over the three-year period.¹³

Figure 6.25 summarises the new NHS England funding settlement (which, as explained above, accounts for just over half of the newly announced funding). In the first two years, 2022–23 and 2023–24, the NHS receives additional money on top of its pre-COVID settlement. This comes to £6.6 billion in 2022–23 and £3.6 billion in 2023–24, on top of the previously agreed funding settlement. The pre-COVID settlement extended to 2023–24, so the announcement for 2024–25, a budget of £160.1 billion, represents entirely 'new' money in the sense that there is no pre-existing baseline for it to be compared against.

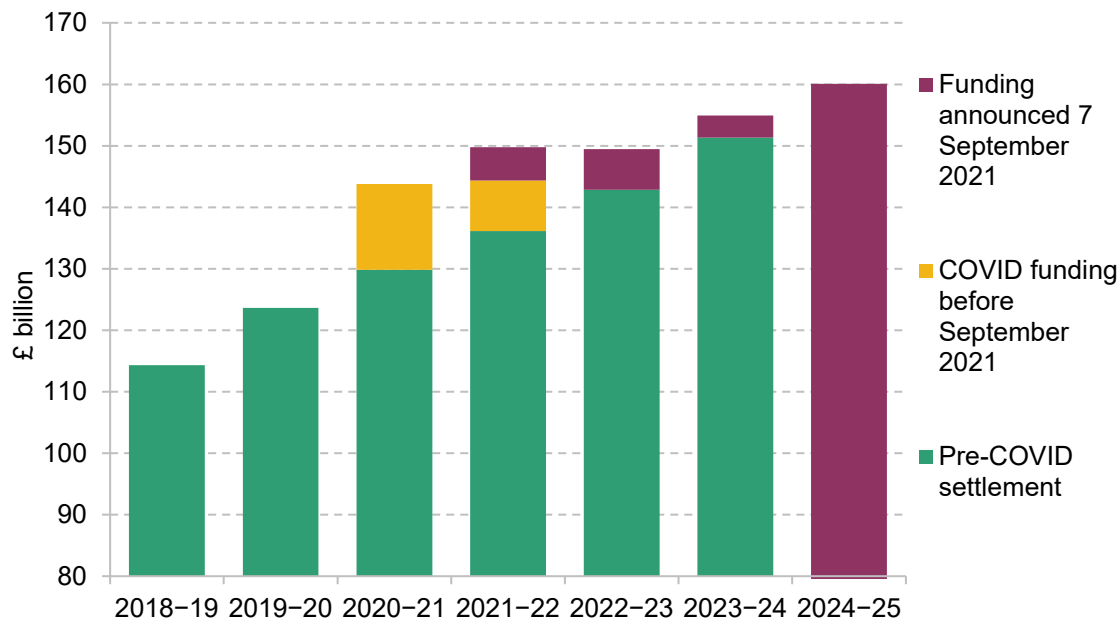
Figure 6.25 shows that the new funding settlement is more generous than the one it replaces, to the tune of £6.6 billion in 2022–23 and £3.6 billion in 2023–24. But, importantly, the new settlement for 2024–25 implies that the NHS England budget will return to its pre-pandemic spending trajectory. Under the funding settlement that pre-dated the pandemic, NHS England funding was planned to grow at an average real annual rate of 3.9% over the five years between 2018–19 and 2023–24.¹⁴ Over the six-year period from 2018–19 to 2024–25, funding is still set to grow at an average real annual rate of 3.9%. That would suggest an extension of the long-term plan, and thus a similar amount of NHS funding to what might have been expected pre-COVID.

¹³ The 7 September announcement also included funding to compensate public sector employers for the cost associated with the increase in employer National Insurance contributions, but this funding is in addition to the DHSC numbers discussed here.

¹⁴ Note that this exceeds the 3.4% real-terms increases announced by Theresa May in 2018 due to top-ups to the budget since then, and changes to the inflation forecast (lower inflation means that the same cash budgets imply faster real-terms growth).

This implies minimal additional virus-related spending on the NHS after that point. Note that 3.9% average growth is slightly above the long-run average of 3.6% growth in UK health spending discussed earlier, and well above the 1.2% per year seen between 2009–10 and 2018–19, but well below the average 6.0% seen under the Blair and Brown governments.

Figure 6.25. NHS England resource funding under September 2021 settlement



Source: HM Treasury's PESA 2021, DHSC's 2020–21 Revised Financial Directions to NHS England, HMG's Build Back Better: Our Plan for Health and Social Care (September 2021).

Is it enough?

This begs the question: is it enough? Will this additional funding be enough to meet short-term COVID pressures, enough to return the service to its pre-pandemic level, or enough to 'build back better' and return to meeting constitutional targets that were being missed pre-pandemic?

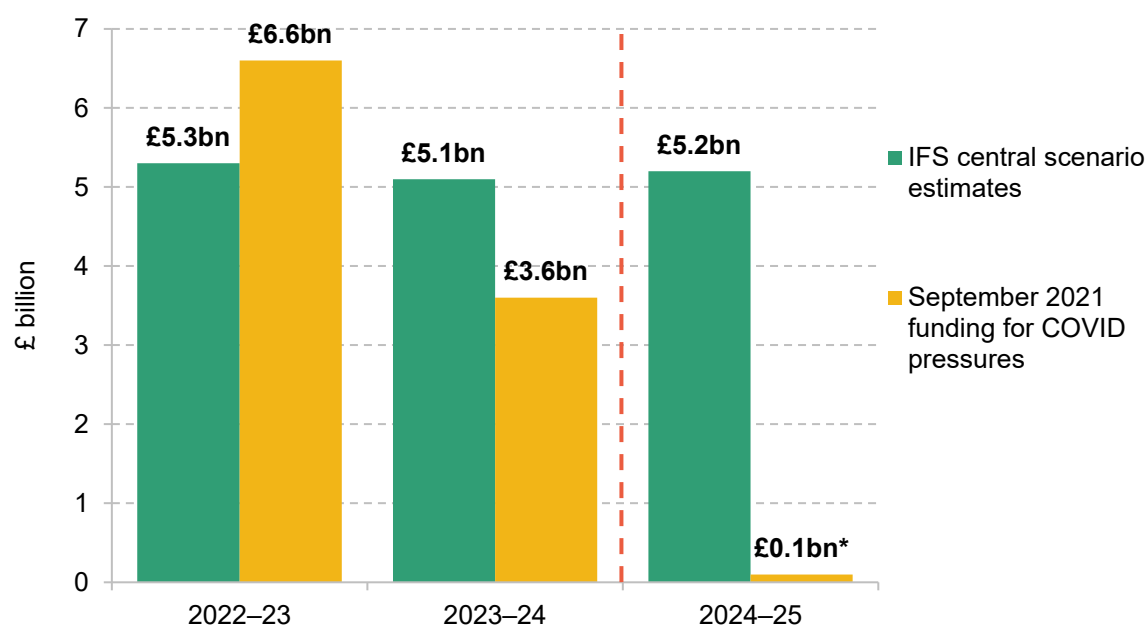
NHS England

We first consider 2022–23 and 2023–24, where the new funding can be viewed as a top-up to pre-pandemic plans, and thus genuinely 'additional' funding to deal with pandemic-related pressures. In our central scenario, we estimate that the pressures on *overall* health spending will amount to around £9.1 billion in 2022–23 and £6.2 billion in 2023–24. Within that, NHS England faces pressures of £5.3 billion in 2022–23 and £5.1 billion in 2023–24 (the remainder is for non-NHS items such as Test & Trace and procurement of PPE). The government's new funding announcement gives NHS England £6.6 billion and £3.6 billion over those two years: almost exactly what our central scenario suggests the NHS would need in total (£10.4 billion under our estimates, compared with £10.2 billion announced). This is shown in Figure 6.26. We

therefore judge that, based on our analysis, the government has provided enough funding in the next two years for the NHS to meet the pressures it faces.

The pre-COVID NHS settlement only went to 2023–24 which makes it harder to evaluate the funding announced for 2024–25. The figure was announced as £5.6 billion of ‘additional’ funding, but this assumes that NHS funding would have stayed constant in real terms compared with 2023–24. The pre-COVID plan increased NHS funding in real terms each year to account for growing demand due to demographic pressures and other cost pressures. If we instead assume that funding would have grown in real terms by 3.6% in 2024–25 (the long-term average rate, and close to average growth under pre-COVID plans), the NHS’s budget would have been £160.0 billion in that year. This is almost exactly the figure that has been announced by the government (£160.1 billion). That suggests that the NHS budget is to return to its pre-pandemic trajectory, implying next-to-nothing in the way of additional virus-related funding (just £0.1 billion, under our assumed counterfactual, as shown in Figure 6.26).

Figure 6.26. Estimated NHS COVID pressures compared with new announcement



* This assumes that NHS England funding would have grown in real terms by 3.6% in 2024–25, in line with the long-run historical average and the 2018 NHS funding settlement. Relative to a counterfactual where NHS spending was held flat in real terms between 2023–24 and 2024–25, the government’s latest announcement equates to a £5.6 billion funding increase (which is the figure used in government documents).

Source: Authors’ calculations using all sources in Section 6.4 and HMG’s Build Back Better: Our Plan for Health and Social Care (September 2021).

In our central scenario, we estimate that COVID pressures will cost the NHS £5.2 billion in 2024–25. Given that the government appears to have provided virtually nothing in that year for virus-related costs, this suggests that the NHS may not have sufficient funding in the medium term to meet the pressures placed upon it. That could mean that additional funding is required from 2024–25 – and history suggests that NHS spending plans are more often than not topped up (Zaranko, 2021) – or that funding may need to be found from elsewhere in the NHS budget.

One of the key purposes of this increased funding, alongside dealing with direct COVID pressures, is to deal with the backlog of elective treatment that has built up during the pandemic. As part of that, the government has announced that with this additional funding, the NHS should aim to deliver 30% more elective activity in 2024–25 than it was doing pre-pandemic, and that once the NHS has recovered from the pandemic, activity should be the equivalent of 10% higher than under the NHS Long Term Plan (HMG, 2021c).

We estimate that the government’s target to increase NHS capacity to 10% above the level in the NHS’s Long Term Plan would be enough to return waiting lists to pre-COVID levels within three or four years. And in our central scenario the increase in NHS funding would be sufficient to achieve this for the first two years. But with little additional funding in 2024–25 relative to the NHS Long Term Plan, it is hard to see how the NHS could maintain these large increases in volumes into the medium term. Even with extra funding, a boost to capacity on that scale will still be highly challenging, given long-standing staffing shortages and the potential need for ongoing infection control measures. If these constraints bite, and the NHS struggles to increase capacity by the desired amount, it could take longer to deal with the elective care backlog. And if they cause marginal costs of providing care to increase then even more additional funding would likely be needed to clear the backlog.

Other parts of the DHSC budget

Some COVID expenditure, in particular Test & Trace and PPE procurement, is funded from DHSC’s budget directly rather than via NHS England. In our central scenario, we estimate that that this will cost DHSC £3.8 billion in 2022–23, £1.0 billion in 2023–24 (£4.8 billion over the first two years) and £0.3 billion in 2024–25 (taking it to £5.1 billion in total). To compare with the government’s latest plans, we assume that the additional £5.4 billion for adult social care is spread evenly over the three years (i.e. £1.8 billion in each year). That would leave £2.8 billion and £3.6 billion for other DHSC programmes in the first two years: £6.4 billion in total, more than the £4.8 billion that we estimate would be needed. That could allow for spending increases on areas not considered in detail in this chapter, such as the new UK Health Security Agency. But in the medium term, any spare funding could be siphoned off to meet any shortfalls in NHS funding.

In sum, then, the new funding announced by the government looks to be sufficient to meet the pressures on the NHS and other parts of the health system over the coming two years. This is, of course, highly uncertain and dependent on the future path of the pandemic, but looks to be ‘about right’ in scale. In 2024–25, however, the latest plans seem to imply that the NHS will return to its pre-pandemic growth path, which suggests minimal additional funding for pandemic pressures. At this point, it would be a surprise if the Chancellor, or his successor, did not find themselves following the time-honoured tradition of topping up the NHS budget.

6.7 Conclusion

The NHS has faced huge pressures during the pandemic. Appropriately, this led to huge emergency increases in funding for NHS services, PPE procurement and vaccines, and for new bodies such as NHS Test and Trace. Although there are now far fewer COVID-19 patients in hospital than in earlier waves of the pandemic, this does not mean that the NHS is out of the woods. Even if COVID-19 disappeared tomorrow, its consequences for the health service – such as patients suffering from long COVID, increased demand for mental health services, the cost of catching up on missed activity, and concerns around staff burnout – would still remain for years to come.

We estimate that dealing with these pandemic-related pressures could require additional funding to the tune of £9 billion in 2022–23, £6 billion in 2023–24 and £5 billion in 2024–25. These estimates are subject to huge uncertainty, and reasonable people could disagree with our assumptions, but they indicate the broad scale of the challenge ahead. £21 billion spread over three years is a large but manageable amount – especially when placed in the context of overall NHS spending, and when compared with the £34 billion cash increase announced by Theresa May in 2018.

These estimates also provide a sense of where the largest cost pressures are likely to arise. Some of the largest estimated costs are those associated with catching up on missed activity, dealing with increased demand for mental health services, and the ongoing costs of Test and Trace while community transmission of COVID-19 remains high. Many of the direct pressures of COVID-19 – such as the treatment of patients with COVID-19 and/or long COVID – are likely to come with a smaller price tag than some of the indirect pressures caused by the pandemic.

Using this analysis, we can provide an assessment of the adequacy of the government’s latest funding announcement. In our judgement, the newly announced settlement should be enough to meet pandemic-related pressures over the next two years. These figures are highly uncertain, and there is a chance that our central scenario turns out to be too optimistic (if, for instance, there is a worse-than-usual flu pandemic this winter, or a vaccine-resistant COVID-19 variant emerges).

In that case, these sums could prove to be insufficient, and the Chancellor will therefore need to continue to be prepared to provide more funding in the short term, should circumstances require it.

While the newly announced funding might suffice in the near term, the medium-term picture looks very different. The latest NHS spending plans appear to allow for virtually no additional virus-related funding in 2024–25 (or, if they do, it would likely need to be found from other parts of the NHS budget). Given the pressures that the NHS was already facing pre-pandemic, and given the historical tendency for NHS spending plans to be topped up, an upwards revision to the spending totals pencilled in for 2024–25 is the most likely eventual outcome. And even with this week’s announcement and with or without any future top-up, the next few years will still be highly challenging given the risks of staff burnout, long-standing staffing shortages and other capacity limitations.

References

- Banks, J., Karjalainen, H., & Propper, C. (2020). Recessions and Health: The Long-Term Health Consequences of Responses to the Coronavirus. *Fiscal Studies*.
- Banks, J., Xu, X., & Fancourt, D. (2021). Mental health and the COVID-19 pandemic. In J. Helliwell, R. Layard, J. Sachs, & J. De Neve, *World Happiness Report 2021*. New York: Sustainable Development Solutions Network.
- BBC. (2021a, July 11). *NHS backlog in England could reach 13 million, says Sajid Javid*. Retrieved from <https://www.bbc.co.uk/news/uk-57793122>
- BBC. (2021b, February 3). *Covid: When will I get the vaccine?* Retrieved from https://web.archive.org/web/20210203130902if_/https://www.bbc.com/news/health-55045639
- BBC. (2021c, July 11). *Covid: NHS backlog in England could reach 13 million, says Sajid Javid*. Retrieved from <https://www.bbc.co.uk/news/uk-57793122>
- BMA. (2021, February). *BMA COVID Tracker Survey February 2021*. Retrieved from <https://www.bma.org.uk/media/3810/bma-covid-tracker-survey-february-2021.pdf>
- Buchan et al. (2020, December). *Building the NHS nursing workforce in England*. Retrieved from <https://www.health.org.uk/publications/reports/building-the-nhs-nursing-workforce-in-england>
- Burn, S., Propper, C., Stoye, G., Warner, M., Aylin, P., & Bottle, A. (2021, May 13). *What happened to English NHS hospital activity during the COVID-19 pandemic?* Retrieved from <https://ifs.org.uk/publications/15432>
- Charlesworth et al. (2018, May 24). *Securing the future: funding health and social care to the 2030s*. Retrieved from <https://ifs.org.uk/publications/12994>
- Cook, C. (2020, March 30). *The NHS at capacity*. Retrieved from Tortoise: <https://www.tortoisemedia.com/2020/03/30/chris-cook-coronavirus-nhs-at-capacity/>
- Coyle, D., Dreesbeimdieck, K., & Manley, A. (2021). Productivity in UK healthcare during and after the Covid-19 pandemic. *The Productivity Institute: Working Paper No. 002*.

- Retrieved from <https://www.productivity.ac.uk/wp-content/uploads/2021/04/Health-Productivity-Diane-Coyle-FINAL.pdf>
- Curtis, L., & Burns, A. (2019). *Unit Costs of Health and Social Care*. Retrieved from <https://kar.kent.ac.uk/79286/11/UCFinalFeb20.pdf>
- DHSC. (2021a, March 18). *£7 billion for NHS and social care for COVID-19 response and recovery*. Retrieved from <https://www.gov.uk/government/news/7billion-for-nhs-and-social-care-for-covid-19-response-and-recovery>
- DHSC. (2021b, March 25). *2020-21 Revised Financial Directions to NHS England*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/973226/Revised_Financial_directions_2020-21.pdf
- DHSC. (2021c, June 22). *PAC Hearing - Initial Lessons Learned*. Retrieved from <https://committees.parliament.uk/publications/6537/documents/70830/default/>
- DHSC. (2021d, January 11). *UK COVID-19 vaccines delivery plan*. Retrieved from <https://www.gov.uk/government/publications/uk-covid-19-vaccines-delivery-plan>
- DHSC. (2021e, September 6). *Additional £5.4 billion for NHS COVID-19 response over next 6 months*. Retrieved from <https://www.gov.uk/government/news/additional-54-billion-for-nhs-covid-19-response-over-next-six-months>
- Ewbank, L., Thompson, J., McKenna, H., & Anandaciva, S. (2020, March 26). *NHS hospital bed numbers: past, present, future*. Retrieved from The King's Fund: <https://www.kingsfund.org.uk/publications/nhs-hospital-bed-numbers>
- Farquharson, C., Phillips, D., & Zaranko, B. (2021, April 14). *Public service spending in Scotland: trends and key issues*. Retrieved from <https://ifs.org.uk/publications/15395>
- FT. (2020, November 10). *UK government to pump up to £43bn into Covid testing*. Retrieved from Financial Times: <https://www.ft.com/content/07f76b06-73db-4647-97b6-ef0a9a58626d>
- FT. (2021, July 23). *NHS chief Simon Stevens: 'You've got to make the weather'*. Retrieved from <https://www.ft.com/content/3747c7f1-ac3f-4062-998e-4506b4a131f4>

Ghazaryan, A., Giulietti, C., & Wahba, J. (2020, September 27). *How prepared was the NHS for coronavirus?* Retrieved from <https://www.economicsobservatory.com/how-prepared-was-nhs-coronavirus>

Health Education England. (n.d.). *Advanced Clinical Practice Introduction*. Retrieved from https://www.hee.nhs.uk/sites/default/files/documents/ACP%20webinar%20introduction%20and%20practice_0.pdf

HMG. (2018, June 18). *Prime Minister sets out 5-year NHS funding plan*. Retrieved from <https://www.gov.uk/government/news/prime-minister-sets-out-5-year-nhs-funding-plan>

HMG. (2019, September 4). *Spending Round 2019*. Retrieved from <https://www.gov.uk/government/publications/spending-round-2019-document/spending-round-2019>

HMG. (2020a, May 11). *Budget 2020*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/871799/Budget_2020_Web_Accessible_Complete.pdf

HMG. (2020b, April 13). *Chancellor provides over £14 billion for our NHS and vital public services*. Retrieved from <https://www.gov.uk/government/news/chancellor-provides-over-14-billion-for-our-nhs-and-vital-public-services>

HMG. (2020c, November). *Spending Review 2020*. Retrieved from <https://www.gov.uk/government/publications/spending-review-2020-documents/spending-review-2020#responding-to-covid-19-1>

HMG. (2021a, March 3). *Budget 2021*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/966868/BUDGET_2021_-_web.pdf

HMG. (2021b). *Cornavirus (COVID-19) in the UK*. Retrieved from <https://coronavirus.data.gov.uk/>

HMG. (2021c, September 7). *Build Back Better: Our Plan for Health and Social Care*. Retrieved from <https://www.gov.uk/government/publications/build-back-better-our-plan-for-health-and-social-care>

HMT. (2020, July). *Public Expenditure Statistical Analyses 2020*. Retrieved from <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment>

_data/file/901406/CCS207_CCS0620768248-001_PESA_ARA_Complete_E-Laying__002_.pdf

HMT. (2021, July). *Public Expenditure Statistical Analyses 2021*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003755/CCS207_CCS0621818186-001_PESA_ARA_2021_Web_Accessible.pdf#page=154

Hopson, C. (2021, August 11). Retrieved from <https://twitter.com/ChrisCEOHopson/status/1425418710819516417>

Horton, T., & Jones, B. (2020, June 4). *Three key quality considerations for remote consultations*. Retrieved from <https://www.health.org.uk/news-and-comment/blogs/three-key-quality-considerations-for-remote-consultations>

Janke, K., Lee, K., Propper, C., Shields, K., & Shields, M. A. (2020). Macroeconomic Conditions and Health in Britain: Aggregation, Dynamics and Local Area Heterogeneity. *IZA Discussion Paper*.

King's Fund. (2019, November 8). *Key facts and figures about the NHS*. Retrieved from <https://www.kingsfund.org.uk/audio-video/key-facts-figures-nhs>

Kraindler et al. (2020, November 24). *Spending Review 2020: Managing uncertainty*. Retrieved from <https://www.health.org.uk/publications/long-reads/managing-uncertainty>

Margerison-Zilko, C., Goldman-Mellor, S., Falconi, A., & Downing, J. (2016). Health Impacts of the Great Recession: A Critical Review. *Curr Epidemiol Rep*.

Murray, R. (2021, July 29). *Lessons from the 2000s: the ambition to reduce waits must be matched with patience and realism*. Retrieved from <https://www.kingsfund.org.uk/publications/nhs-waiting-times>

NAO. (2020, November 25). *The supply of personal protective equipment (PPE) during the COVID-19 pandemic*. Retrieved from <https://www.nao.org.uk/wp-content/uploads/2020/11/The-supply-of-personal-protective-equipment-PPE-during-the-COVID-19-pandemic.pdf>

NAO. (2021a, June 25). *Test and trace in England - progress update*. Retrieved from <https://www.nao.org.uk/wp-content/uploads/2021/06/Test-and-trace-in-England-progress-update.pdf>

- NAO. (2021b, May). *COVID-19 Cost Tracker*. Retrieved from <https://www.nao.org.uk/covid-19/cost-tracker/>
- NHS. (2019, June). *NHS Long Term Plan Implementation Framework*. Retrieved from <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/06/long-term-plan-implementation-framework-v1.pdf>
- NHS. (2021, June 15). *Long COVID: the NHS plan for 2021/22*. Retrieved from <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2021/06/C1312-long-covid-plan-june-2021.pdf>
- NHS Confederation and NHS Providers. (2021, September 2). *A reckoning: the continuing cost of COVID-19*. Retrieved from <https://www.nhsconfed.org/publications/reckoning-continuing-cost-covid-19>
- NHS Digital. (2021a, June 3). *NHS Vacancy Statistics England*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-vacancies-survey/april-2015---march-2021>
- NHS Digital. (2021b, July 13). *Provisional Monthly Hospital Episode Statistics for Admitted Patient Care, Outpatient and Accident and Emergency data April 2021 - May 2021*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-episode-statistics-for-admitted-patient-care-outpatient-and-accident-and-emergency-data/april-2021---may-2021>
- NHS Digital. (2021c, August 5). *General Practice Workforce - 30 June 2021*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/30-june-2021>
- NHS Digital. (2021d, July 1). *NHS Staff Earnings Estimates March 2021, Provisional Statistics*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-staff-earnings-estimates/march-2021>
- NHS Digital. (2021e, July 29). *NHS Sickness Absence Rates NHS Sickness Absence Rates*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-sickness-absence-rates/march-2021-annual-summary-2009-to-2020>
- NHS Digital. (2021f, July 8). *Mental Health Services Monthly Statistics*. Retrieved from <https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-services-monthly-statistics>

- NHS Digital. (2021g, January 28). *Mental Health Bulletin 2019-20 Annual Report*. Retrieved from <https://files.digital.nhs.uk/0E/62D5B5/MHB-1920-Annual%20Report.pdf>
- NHS England. (2020a, November 9). *URGENT PREPARING FOR GENERAL PRACTICE TO CONTRIBUTE TO A POTENTIAL COVID-19 VACCINATION PROGRAMME*. Retrieved from https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0856_COVID-19-vaccineletter_9-Novrevb.pdf#page=5
- NHS England. (2020b, April 29). *SECOND PHASE OF NHS RESPONSE TO COVID19*. Retrieved from <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/04/second-phase-of-nhs-response-to-covid-19-letter-to-chief-execs-29-april-2020.pdf>
- NHS England. (2021a, June). *National Cost Collection for the NHS*. Retrieved from <https://www.england.nhs.uk/national-cost-collection/#ncc1819>
- NHS England. (2021b, June). *Long COVID: the NHS plan for 2021/22*. Retrieved from <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2021/06/C1312-long-covid-plan-june-2021.pdf>
- NHS England. (2021c, June). *National Cost Collection 2019/20 Report*. Retrieved from <https://www.england.nhs.uk/wp-content/uploads/2021/06/National-Cost-Collection-2019-20-Report-FINAL.pdf>
- NHS England. (2021d, May 26). *Clinically led review of urgent and emergency care standards: measuring performance in a transformed system*. Retrieved from <https://www.england.nhs.uk/publication/clinically-led-review-of-urgent-and-emergency-care-standards-measuring-performance-in-a-transformed-system/>
- NHS Pay Review Body. (2021, July). *Thirty-Fourth Report 2021*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005011/NHSPRB_2021_Report_-_Web_accessible_version.pdf
- NHS Providers. (2021). *THE IMPACT OF THE PANDEMIC ON THE WORKFORCE*. Retrieved from <https://nhsproviders.org/recovery-position-what-next-for-the-nhs/the-impact-of-the-pandemic-on-the-workforce>
- NMC. (2017, July). *The NMC Register 2012/13 - 2016/17*. Retrieved from Nursing & Midwifery Council: <https://www.nmc.org.uk/globalassets/sitedocuments/other-publications/nmc-register-2013-2017.pdf>

Nuffield Trust. (2021, August 8). *NHS trusts face unfunded spending pressures of £5bn in coming year*. Retrieved from <https://www.nuffieldtrust.org.uk/news-item/nuffield-trust-nhs-trusts-face-unfunded-spending-pressures-of-5bn-in-coming-year#details-of-analysis>

Nuffield Trust. (n.d.). *The history of the NHS*. Retrieved from <https://www.nuffieldtrust.org.uk/health-and-social-care-explained/the-history-of-the-nhs/>

OBR. (2018, July 17). *Fiscal sustainability report – July 2018*. Retrieved from <https://obr.uk/fsr/fiscal-sustainability-report-july-2018/>

OBR. (2021a, March 3). *Economic and fiscal outlook – March 2021*. Retrieved from <https://obr.uk/efo/economic-and-fiscal-outlook-march-2021/>

OBR. (2021b, July 6). *Fiscal risks report - July 2021*. Retrieved from <https://obr.uk/frr/fiscal-risks-report-july-2021/>

ONS. (2019, October 21). *National population projections: 2018-based*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2018based>

ONS. (2021a, April 1). *Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 1 April 2021*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021>

ONS. (2021b, July 1). *Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK: 1 July 2021*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1july2021/>

ONS. (2021c, May 5). *Coronavirus and depression in adults, Great Britain: January to March 2021*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/coronavirusanddepressioninadultsgreatbritain/latest>

ONS. (2021d, May 5). *Coronavirus and GP diagnosed depression in England: 2020*. Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/mentalhealth>

lth/bulletins/coronavirusandgpdiaagnoseddepressioninengland2020/coronavirusandgpdia
gnoseddepressioninengland2020

- ONS. (2021e, June 30). *Gross Domestic Product: Quarter on Quarter growth: CVM SA %*. Retrieved from <https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/ihyq/qna>
- ONS. (2021f, August 17). *Unemployment rate (aged 16 and over, seasonally adjusted)*. Retrieved from <https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/mgsx/lms>
- O'Shea, N. (2021, May 12). *Covid-19 and the nation's mental health: May 2021*. Retrieved from <https://www.centreformentalhealth.org.uk/publications/covid-19-and-nations-mental-health-may-2021>
- PHE. (2021a, June 1). *COVID-19: Guidance for maintaining services within health and care settings*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/990923/20210602_Infection_Prevention_and_Control_Guidance_for_maintaining_services_within_H_and_C_settings_1_1.pdf
- PHE. (2021b, August). *COVID-19: infection prevention and control: dental appendix*. Retrieved from <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-infection-prevention-and-control-dental-appendix>
- Propper, C., Sutton, M., Whitnall, C., & Windmeijer, F. (2008). Did 'Targets and Terror' Reduce Waiting Times in England for Hospital Care? *The B.E. Journal of Economic Analysis & Policy*.
- Public Accounts Committee. (2021a, June 10). *Oral evidence: Initial lessons from the government's response to the COVID-19 pandemic, HC 175*. Retrieved from <https://committees.parliament.uk/oralevidence/2332/default/>
- Public Accounts Committee. (2021b, January 11). *Oral evidence: Covid-19: Planning for a vaccine*. Retrieved from <https://committees.parliament.uk/oralevidence/1670/default/>
- RCN. (2020, July 17). *Members have spoken: survey shows increase in those considering leaving the profession*. Retrieved from <https://www.rcn.org.uk/news-and-events/news/uk-members-have-spoken-survey-shows-increase-in-those-considering-leaving-the-profession-170720>

Read et al. (2021). Hospital-acquired SARS-CoV-2 infection in the UK's first COVID-19 pandemic wave. *The Lancet*.

Rocks, S., & Idriss, O. (2020, November 7). *Did hospital capacity affect mortality during the pandemic's first wave?* Retrieved from <https://www.health.org.uk/news-and-comment/charts-and-infographics/did-hospital-capacity-affect-mortality-during-the-pandemic>

Stoye, G., Warner, M., & Zaranko, B. (2021, August 8). *Could NHS waiting lists really reach 13 million?* Retrieved from <https://ifs.org.uk/publications/15557>

Zaranko, B. (2021, September 8). *An ever-growing NHS budget could swallow up all of this week's tax rise, leaving little for social care.* Retrieved from <https://ifs.org.uk/publications/15599>