REAL Centre Working paper

How many NHS workers will we need over the coming decade?

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Nuha Bazeer,
Stephen Rocks,
Laurie Rachet-Jacquet,
Nihar Shembavnekar,
Elaine Kelly,
Anita Charlesworth

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Abstract

This paper examines how many full-time equivalent staff the NHS in England might need by 2030/31 to meet projected demand under alternative scenarios. These projections of workforce demand cover both the NHS hospital and community health service and general practice. The projected estimates are an update from our 2021 funding projections report. We now account for potential improvements in the productivity of the acute hospital sector from reductions in the average length of stay and an increasing proportion of elective care delivered through day cases, while acknowledging that there are other variables that can influence productivity (such as changes in technology and workforce composition) which we are unable to account for.

Our central projection, in a scenario that assumes continued, but slower, reductions in the time spent in hospital, is that we would need around 314,000 more full-time equivalent NHS staff in 2030/31 relative to 2021/22 to deliver 2018/19 rates of care. This implies that to deliver 2018/19 rates of care, the demand for full-time equivalent NHS staff is projected to grow by around 22%, approximately 2.2% a year, between 2021/22 and 2030/31. This compares to historic average NHS workforce growth rates of around 3% a year between 2000/01 and 2010/11 and around 0.6% a year between 2010/11 and 2019/20. Our updated estimates suggest that even after assuming some productivity gains, workforce demand growth over the coming decade is likely to be substantial. Governments of the future will face tough choices about NHS funding, how to deliver health services, and to whom.

1 Introduction

Even before the COVID-19 pandemic, workforce shortages were widely recognised as one of the biggest challenges facing the NHS in England. The pandemic has added to the pressures facing an already stretched workforce. Failing to address NHS workforce shortages risks undermining the recent government commitment to investment in health and care from the new NHS and Social Care Levy.

In the longer term, ensuring the NHS has the right people with the right skills is critical to both the quality and sustainability of health care provision. In a recent NHS Providers survey, most trust leaders (97–98%) reported that staff shortages were having a serious and detrimental impact on services and would hinder progress in tackling growing backlogs.[1] In this working paper, we update our 2021 estimates[2] of the number of full-time equivalent staff that the NHS in England might need to 2030/31 to account for potential improvements in productivity in acute trusts. We present these updated workforce demand projections under alternative scenarios, covering both the NHS hospital and community health service and general practice.

The NHS faces increasing demand for health care from a growing and ageing population with more complex needs. Everything else unchanged, that points to increasing demand for NHS staff. The two major factors influencing the extent of that bigger demand are a) changes in population health and how this affects demand for health services and b) changes in service models and labour productivity, or what that demand means for workforce requirements.

Our 2021 projections report focused on the potential impact of ageing and population health on growth in health care demand.[3] We found that to sustain the levels of access and quality delivered by the NHS before the pandemic to a growing and aging population, hospital admissions would need to increase by 2.4% a year between 2018/19 and 2030/31. If the way NHS hospitals provide care remains unchanged from the pattern of pre-pandemic provision, the number of staff needed in the NHS is projected to increase by around 466,000 between 2021/22 and 2030/31 over and above existing vacancies to maintain 2018/19 rates of care, an increase of roughly 32%. In the same period, the Office for National Statistics projects that the adult population in England will grow by around 6%, while the number of people aged 65 and older will increase by around 19%, which reflects an ageing population requiring increased health care. The projected growth of 32% in NHS workforce demand to maintain 2018/19 rates of care without changes in the pattern of pre-pandemic hospital care provision is above the long run trend rate of growth in the NHS workforce between 2000/01 and 2019/20, which raises concerns regarding the sustainability and quality of care delivery.

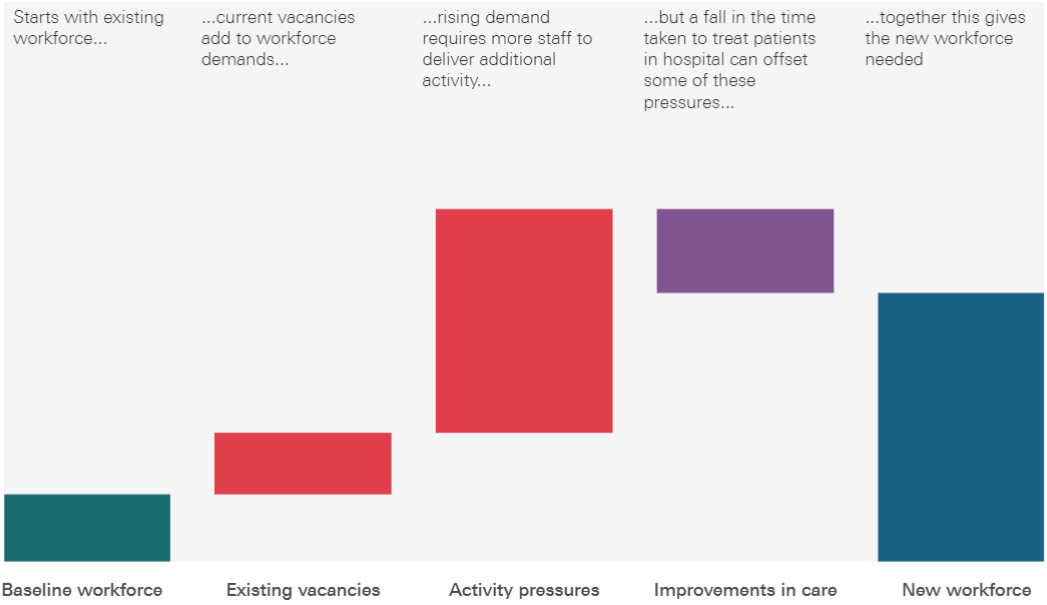
The ways that hospitals provide care are not, however, static. There are changes in technology and ways of working that can increase productivity. This means that the workforce requirements for a given level of activity can change over time. In this analysis we explore two key factors that could lead to improvements in productivity of hospital care that might affect labour demand:

- Whether people stay in hospital to receive planned care or are treated on the same day as a day case – the **day case rate**. Recent decades have seen substantial changes in the amount of planned care that is provided on a day case basis in the NHS acute hospital sector, without the need for a full overnight admission.

- For both emergency and planned care where patients need to stay in hospital, how long they stay – **average length of stay (ALOS).** For both emergency and planned care, when patients are admitted to hospital, the average duration of their stay in hospital has fallen from 5.7 days in 2008/09 to 4.5 days in 2018/19.

We analyse how far the numbers of staff that the NHS might need in the coming years to 2030/31 could be reduced based on different scenarios for further reductions in the length of hospital stays and increases in the amount of planned care provided on a day case basis. At least in theory, these variables are likely to have an impact on health service productivity – defined in simple terms as output produced per unit of staff input – and quality, as they lead to reductions in average staff time per patient in hospitals (Figure 1 provides a broad conceptual visualisation of these linkages). However, we do not claim to provide accurate estimates of their relative significance in driving changes in average staff time per patient, which ultimately feeds into hospital workforce demand. Our analysis also abstracts from other factors that could lead to changes in health service productivity and quality, including technological advances and changes in workforce composition. These other factors are fertile territory for future research.

Figure 1: Conceptual visualisation of how a reduction in the average staff time per patient in hospitals could affect projections of growth in NHS workforce demand



We find that continued improvements in the average length of stay and in day case rates to 2030/31 could have a substantial impact on the number of additional staff that the NHS will need over the coming decade. To maintain 2018/19 rates of care, we project an increase in FTE NHS workforce demand of between 18% and 22% (roughly 262,000–314,000 FTE) between 2021/22 and 2030/31 depending on whether the average time spent in hospital falls quickly or relatively slowly (the latter being our 'central' demand projection). These improvements could reduce workforce demand by between a third and a half compared with continuing with pre-pandemic models of NHS health care delivery. This underlines the importance of accounting for changes in labour productivity for estimating future NHS workforce demand.

Delivering lower average length of stay and higher day case rates without affecting quality and safety will be challenging. OECD data suggest that the UK already has a lower length of stay and a higher day case rate compared with other countries. Further improvements will call for well-integrated care provision, as those in hospital are increasingly frail and have multiple health conditions. Further reductions in the average length of hospital stay are also likely to require additional capacity in community care, adult social care and general practice, so that projected declines in hospital sector workforce demand could mask longer term increases in the number of staff needed in those areas. This points to a need for comprehensive systemic change rather than simply a focus on hospital processes and flows.

Even with improved average length of stay and day case rates, our projections highlight the scale of the NHS workforce growth challenge over the coming decade. In the scenario of slower falls in time in hospital, projected workforce demand grows at around 2.2% a year to 2030/31, more than three times the observed average annual growth rate of 0.6% in the FTE NHS workforce between September 2010 and

September 2019. Even if we assume more rapid falls in time in hospital, projected NHS workforce demand growth to 2030/31 amounts to around 1.9% a year, still three times the rate of growth over the last decade. The REAL Centre acknowledges that these projections are work in progress. We will refine and update them in future iterations.

To provide context, chapter 2 of this working paper summarises key NHS workforce statistics and recent trends in health care activity growth. Chapter 3 sets out our methodology for estimating future workforce demand growth. Chapter 4 presents our updated projections of workforce demand and chapter 5 concludes.

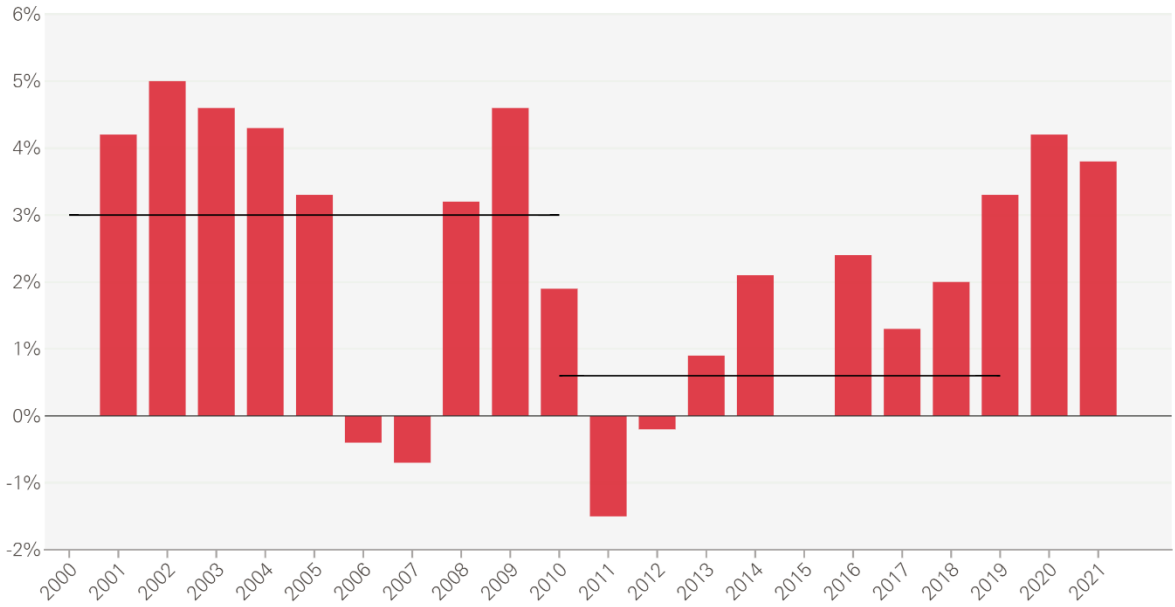
2 Context

2.1 The existing NHS workforce

At the end of 2021, almost 1.6 million people were directly employed in NHS hospitals, mental health and community Trusts (HCHS) and within general practice in England, equating to around 1.35 million full-time equivalent (FTE) staff. This is around 5% of the total workforce in England.

Over recent decades, the number of people working in the NHS has increased. In 2000, just under 900,000 FTE staff (around 1.1 million people) worked in the NHS (HCHS and general practice). Over the last 2 decades, the workforce has increased by a half (just over 450,000 FTE were added between 2000 and 2021). Meanwhile, the population has grown by just 15% (2000-2020), although there has been a larger (34%) rise in the population aged 65 and over. Figure 2 shows the variations in the annual average rate of NHS FTE workforce growth in England (including both the NHS HCHS and general practice staff) between 2000 and 2021 for full-time equivalents.

Figure 2: Growth in the NHS workforce in England (including both the NHS HCHS and general practice staff), 2000–2021, full-time equivalents



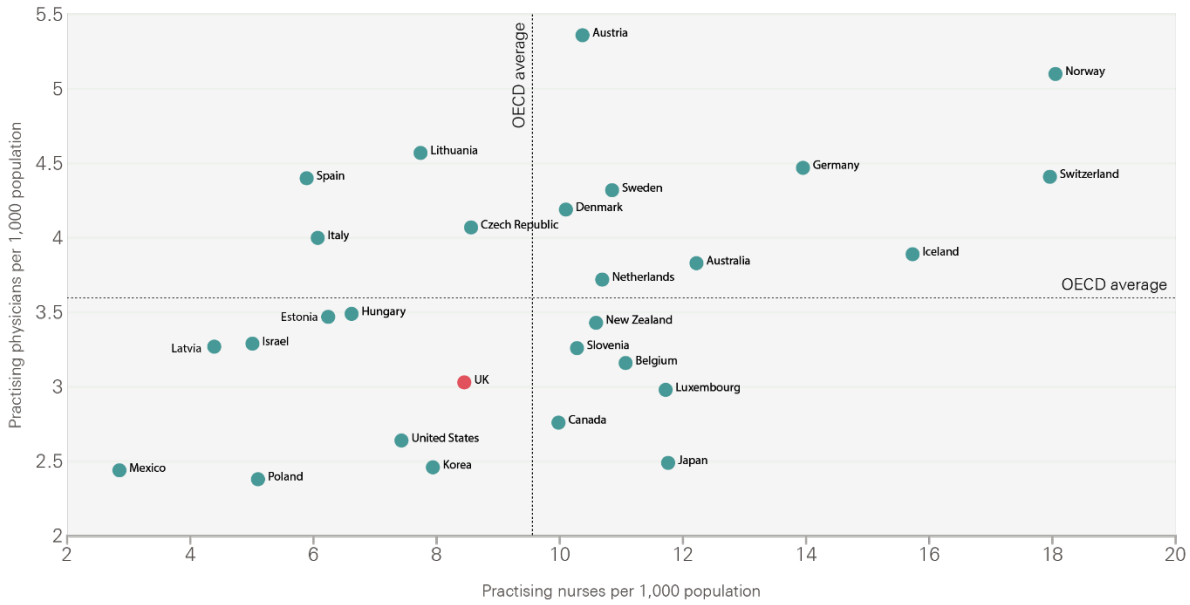
Note: The 2000–2010 data were compiled by the Health and Social Care Information Centre (http://data.parliament.uk/DepositedPapers/Files/DEP2011-0900/DEP2011-0900.pdf) and the 2010–2021 data were derived from NHS Digital's publication of NHS workforce statistics (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics) and general practice workforce statistics (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services). There is a break in the annual time series between 2014 and 2016 as NHS Digital general practice workforce data from September 2015 onwards are not comparable to older data series for the general practice workforce.

Over the last 2 years the growth in the NHS FTE workforce has increased, with around an additional 100,000 FTE staff employed in December 2021 compared with December 2019 – an annual average increase of around 4%. But, COVID-19 has contributed to increased staff sickness absences, workload pressures and feelings of burnout. In the quarter to December 2021, despite workforce growth, vacancy rates across the HCHS were back to pre-pandemic highs of more than 110,000 FTE.

National data on staff vacancy rates in general practice are not available. One way to estimate staff shortages in general practice is to consider whether growth in staff numbers has kept pace with growth in the patient base. NHS Digital data suggest that between December 2017 and December 2021, the number of fully qualified, permanently employed GPs (this excludes GPs in training and locum GPs) for every 100,000 patients in England fell from 47 to 44, while the number of general practice nurses per 100,000 patients was almost flat at 27. This is before we adjust for age and other measures of need: previous Health Foundation research has shown that when we adjust for need, there are fewer GPs and more practice nurses per head of the population in more deprived areas compared with less deprived areas.[4] Current policies on general practice risk widening existing inequities.[5]

Overall, OECD data show that in 2019, the UK employed 60 people per 1,000 population in the 'human health and social work activities' sector, above the average of 50 for the 38 OECD countries where data were available.[6] However, skill mix in the UK is different, with the UK being below the OECD average for the number of practising doctors and nurses per head of population.[7] Figure 3 shows the number of practising physicians and nurses per 1,000 population in OECD countries for 2019 (or latest available year).

Figure 3: Practising physicians and nurses per 1,000 population in OECD countries for 2019 (or latest available year)



Source: OECD Statistics 2021 – Health Care Resources (https://stats.oecd.org/)

2.2 Trends in the need for health care

The potential future need for staff is significantly shaped by likely trends in the need for care. Between 2009/10 and 2018/19, the number of hospital episodes, corresponding to the care of a consultant, increased by 24%, similar to the growth in acute care staff numbers (26% over the same period). As a result, the number of hospital episodes per staff remained largely stable. Despite a fast-rising volume of hospital episodes, the number of bed days – another measure of hospital activity – decreased during this period because of a falling average length of stay.

Our analysis presents a mixed picture in projected demand across service areas over the next decade if 2018/19 rates of care are to be maintained, with non-elective care projected to grow the most (2.6% a year), compared with negligible projected changes in activity within secondary mental health (0.7%).* Unlike the negative growth recorded in the previous decade for social care and community care, the decade to 2030/31 is projected to register growth of around 2% in these service areas. Box 1 summarises some emerging evidence on how the pandemic has affected health care demand.

* As data sources and calculations differ considerably across service areas, we have not included an 'overall' NHS activity trend or projection in this analysis.

Box 1: A summary of emerging evidence on changing trends in health care demand since the COVID-19 pandemic struck

Recent data on levels of health care demand, such as the number of appointments or referrals, patients on a waiting list, and completion of care pathways, suggest an overall increase when compared with pre-pandemic demand levels. Within general practice, appointment bookings reached a record high over the winter of 2021. The total number of appointments in England was 10% higher between September and November 2021 compared with the same period in 2019. Though remote care delivery through the pandemic might have improved access for some, there were also concerns over poorer access for others – such as those from deprived areas, on low incomes, older people, disabled people, and those whose first language is not English. This prompted the NHS E&I plan for improving access to GP appointments through a new £250m Winter Access Fund. Despite being omitted from the GP access plan, recent data on workforce pressures within general practice suggest a worsening picture: between March 2020 and January 2022, the number of patients per practice grew by 6%, while the number of fully qualified FTE GPs per 1,000 patients fell by 2%. Amid such increases in GP demand and workforce pressures, difficulty in obtaining a GP appointment may have also contributed increased hospital pressure, with 8% of patients reporting they attended an emergency department if they were unable to book a GP appointment.

Prior to the pandemic, 4.4 million patients were on the waiting list for treatment following referral in February 2020. Pandemic-related disruption to health care access and provision has since led the waiting list to grow to record levels: more than 6 million people in January 2022. Of these, more than 311,000 people have been waiting longer than 12 months for treatment, 190 times more (1,613) than recorded pre-pandemic in January 2020. The elective care backlog has also grown due to the impact on elective care pathway completion, with 6 million fewer completed treatments between January 2020 and July 2021 than would have been expected before the pandemic.

However, not all of the elective care backlog is visible: between January 2020 and July 2021, 7.5 million fewer referrals were referred into consultant-led elective care compared with pre-pandemic expectations, adding to the growing worry of high levels of unmet need among the wider population. Estimates of these 'missing' patients – those who might otherwise have come forward for elective treatment but did not – were estimated to be more than 10 million as of February 2022, and are likely to add to existing waiting lists should they present to the NHS needing care.

Increased demand for health care following the pandemic has also appeared in other areas of the health care system, with a greater demand for mental health services, particularly among the younger population. Between April and September 2021, there was an 81% increase in the number of referrals and a 59% increase in urgent or emergency crisis care referrals for children and young people (CYP) than in the same period of 2019. There is also evidence of growing mental health need among the younger population aged between 6 and 16 than in pre-pandemic times, with the rate of having a probable mental health condition increasing from one in nine in 2017 to one in six in 2020.

Mental health, learning disability and autism services were accessed by 2.8 million people in 2020/21, accounting for 5% of the population. Though the number of people accessing these services may have been 2.7% lower than the previous year due to limited access during the pandemic, there is growing evidence of mental health demand increasing in the years following the pandemic. Analysis carried out by the Strategy Unit estimates an 11% increase in the number of referrals to mental health services each year until 2023, accounting for an increased additional cost of £1bn each year.

As demand for mental health services following the pandemic increases, so too will the demand for qualified mental health professionals. Despite the number of people accessing services increasing by almost 40% between 2016 and 2021, growth in the workforce has not kept pace, with many commitments set out within key policy documents on the mental health workforce not on track to be met.

3 Methodology

The REAL Centre projects the health care activity needed to keep up with future demand pressures. To do this, we look at a range of factors, including demographics (population size and age structure), morbidity and mortality (patterns of disease) and policy goals (eg waiting times targets), that drive health care use.

3.1 Activity projections

All else being equal, a bigger population means higher demand for health care. Moreover, since health care use increases with age, population ageing leads to increasing demand for care. However, population change alone does not explain all or even most of the growth in health care use over time. Many studies (see for instance De Meijer et al 2011[8] and Howdon and Rice 2018[9]) find instead that morbidity (diagnosed illness or disease prevalence) and proximity to mortality (death) – which are both associated with ageing – are more important.

To account for these demographic factors, we calculate a baseline rate of health care use by age, gender and, where available, morbidity and mortality for different service areas* and project activity forward through to 2030/31 using population projections and trends in diagnosed diseases.

But the existing rate of activity may not deliver a desired level of performance, meanwhile shocks to the health care system may bring about new needs. To include this, we add estimates of the additional activity needed to meet policy goals such as delivering the NHS long term plan (which includes additional investment in primary care and community care) and meeting waiting times targets such as for elective care. On COVID-19, we include the activity required to meet unexpected demand arising from service disruption during the pandemic, but we do not, at this point, model additional activity from the disease itself as it is too early to gauge the level of ongoing *additional* demand pressure.

Based on both the underlying pressures (population change, mortality and morbidity) and additional pressures (policy goals), we project the level of activity required to meet demand for different services through to 2030/31. For more detail on our approach to activity projections, see our funding projections report.[10]

3.2 Potential changes in productivity

Our NHS workforce projections are based on the activity that would be needed to maintain 2018/19 rates of care. For most services, we assume that the demand for staff

* We use NHS Digital data on the number of FTE HCHS staff in post and FTE HCHS staff vacancies to estimate workforce demand in September in each financial year (eg September 2018 for 2018/19). While vacancies do not always point to staffing shortages in NHS trusts (they may also, for instance, signal service expansion), they are arguably one consistent measure of unmet NHS demand over time.

increases in line with activity and that there is a fixed relationship between the activity metric (eg outpatient consultations, GP appointments) and the number of staff required. In the case of acute care, however, we need to go further. The reason for this is that over the past 2 decades, the health service has been able to deliver more acute care (admissions) with fewer total bed days.

This was achieved mainly through reductions in inpatient length of stay[11] and by delivering more elective care as day cases.[12] For example, data from NHS Digital show that the average length of stay across all providers in England was 4.5 days in 2018/19 and has fallen quickly, by around 1 day over the last decade.[13] Similarly, the proportion of elective admissions (including regular attenders) delivered as day cases has risen above 70%. To reflect these changes in time in hospital in acute care, we present four scenarios with different paths for length of stay and day cases (Table 1 and Figure 4).

Table 1: Scenarios for projections of future workforce demand based on time spent in hospital (2018/19 – 2030/31)

Variable	Upper pressure	Slow fall in time in hospital ('central' scenario)	Fast fall in time in hospital	Lower pressure
Length of stay (LoS)	LoS per person remains static, but rising complexity of patients means it increases 15%, equivalent to more than half a day longer in hospital.	LoS falls 2% by 2030/31, equivalent to reducing the average time in hospital by slightly more than 2 hours.	LoS falls 11% by 2030/31, equivalent to reducing the average time in hospital by about half a day.	LoS falls 27% by 2030/31, equivalent to reducing the average time in hospital by more than 1 day.
Day case	No switch from long stay electives to day cases. As demand for long stays grows faster than day case, this falls 4 percentage points.	Day cases remain almost flat as a share of electives (rising 0.2% per year), equivalent to remaining around 70% of electives.*	Day cases rise as a share of electives by 1.0% per year, equivalent to increasing to 80% of electives.*	Day cases rise as a share of electives by 1.4% per year, equivalent to reaching nearly 84% of electives.*

* Electives includes regular attendances; REAL Centre numbers are estimates from our funding projections model and may differ from actual data from NHS Digital.

Figure 4a: Scenarios for average length of hospital stay

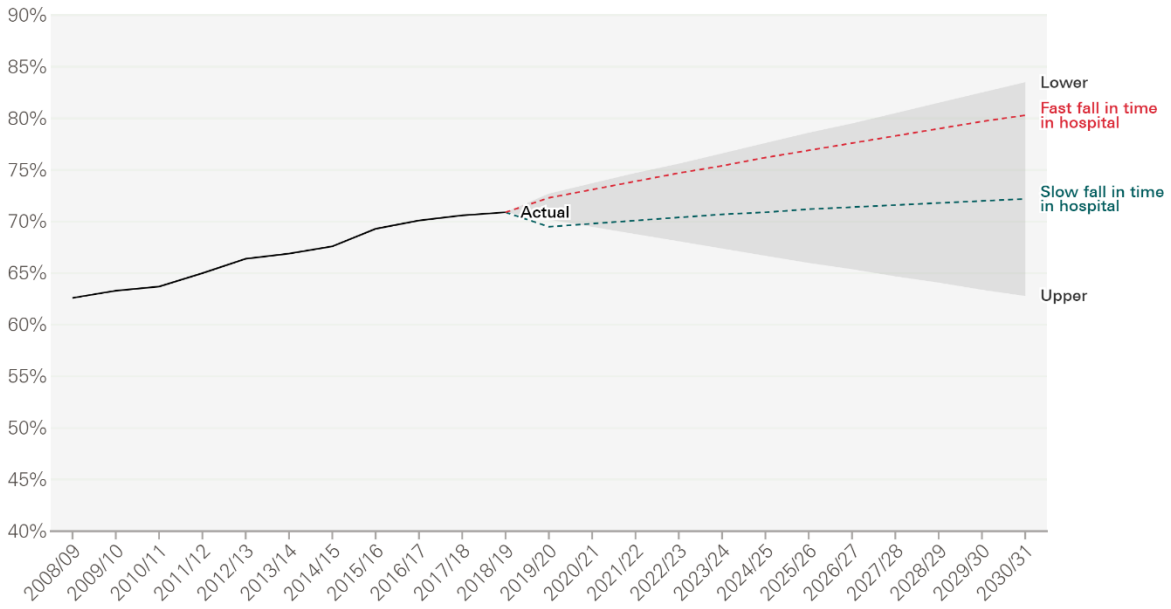
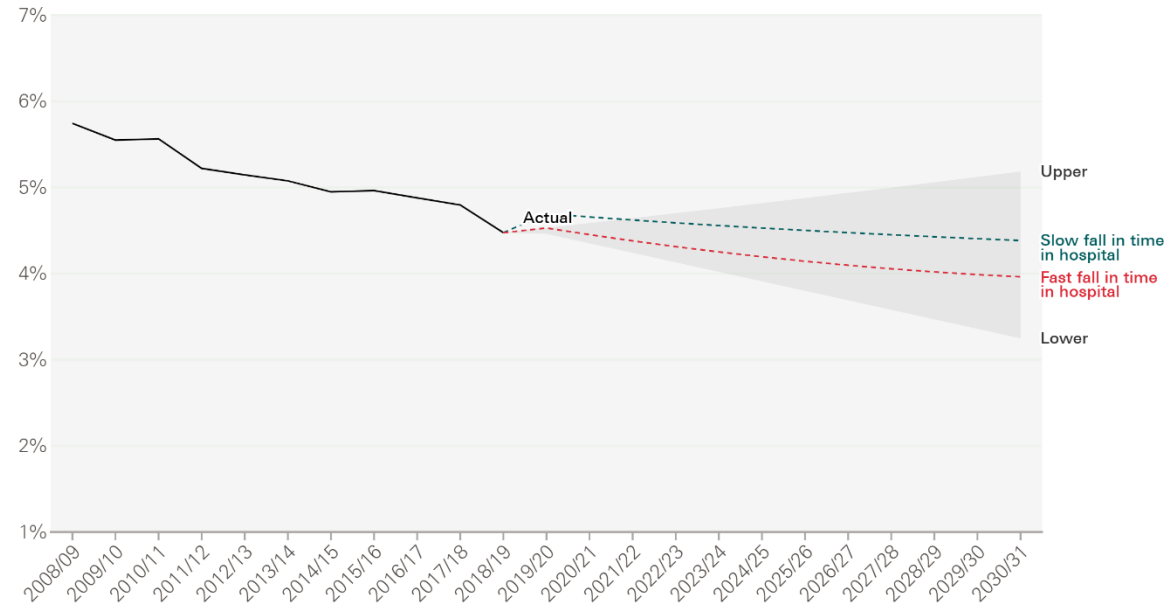


Figure 4b: Scenarios for the proportion of elective activity delivered through day cases



Source: REAL Centre calculations based on NHS Digital data.

Note: 'Low pressure' is a linear change scenario, the 'fast change' scenario follows a polynomial trend, the 'slow change' scenario follows a log trend and 'high pressure' uses the status quo (ie age, gender, average length of stay and day cases as per 2018/19).

Our scenarios assume different rates of increase in day case rates and reductions in hospital length of stay. Even in the scenario with a fast fall in time in hospital, however, we assume future changes will be less rapid than in the past decade. There are several arguments against more aggressive assumptions:

- First, past changes in day cases and length of stay may have been the 'low hanging fruit'; meaning that the procedures that could most easily be shifted to day cases have already been incentivised (Gaughan et al, 2019)[14]. We therefore expect diminishing returns from these efficiency levers.
- Second, international comparisons using OECD data show the United Kingdom already has a relatively low length of stay and a high proportion of day cases (OECD, 2021)[15]. In 2019, the average length of stay in OECD countries where data were available was 7.6 days, higher than the United Kingdom (6.9 days). International data available on ambulatory surgery (surgery carried out on the same day) for cataract removal and tonsillectomy also show the UK performs near the top of the distribution.
- Finally, our projections of an ageing and more morbid population, with the number of deaths every year increasing as the baby boom generation ages, signal an intensification of pressures on hospital resources. Indeed, in recent years the occupancy rate in hospitals in England has been rising to dangerously high levels, suggesting these pressures are already beginning to take effect.

3.3 Workforce demand in the hospital and community health sector

The number of staff required to keep up with demand is given by the baseline level of workforce, plus the number needed to fill NHS vacancies, adjusted for demand growth through to 2030/31. Our projected demand growth for workforce is a weighted estimate of admissions growth (one third) and total bed days (two-thirds). The reason is that workforce numbers are unlikely to fall exactly in line with bed days – half as many bed days will not need only half the number of staff. Consider that each admission involves something like the following: assessment, admission, treatment, and discharge. This is the case for both day cases and longer stays. For longer stays, the extra time spent in hospital is likely to be less resource-intensive than day cases.

Our baseline for workforce demand modelling is 2018/19, but NHS Digital data on HCHS workforce supply and vacancy rates are now available up to 2021/22. We therefore use these NHS workforce and vacancy figures to inform our estimates between 2018/19 and 2021/22. As vacancies represent posts that are funded or advertised but cannot be filled at a point in time, underlying demand for staff may be estimated as the gap between actual supply and the 'potential' supply if all vacancies were filled without the increased costs arising from bank or agency staff recruitment.*

* We use NHS Digital data on the number of FTE HCHS staff in post and FTE HCHS staff vacancies to estimate workforce demand in September in each financial year (e.g. September 2018 for 2018/19). While vacancies do not always point to staffing shortages in NHS trusts (they may also, for instance, signal service expansion), they are arguably one consistent measure of unmet NHS demand over time.

After 2021/22, we use our projections of activity by service area to estimate the workforce needed through to 2030/31.Note that our workforce demand projections refer to staff **directly employed by the NHS**. Some of the projected increases in workforce demand could also be met through non-NHS provision of NHS services (eg agency staff recruitment or contractual services provided by the independent sector to the NHS). That is beyond the scope of our analysis.

3.4 Workforce demand in general practice

While our approach to modelling future workforce demand in general practice is very similar, estimating the demand for general practice staff at a 'start' date is more problematic as data on general practice staff vacancy rates are not available (unlike for the NHS HCHS). We therefore employ the following approach to estimate general practice workforce demand in 2018/19:

- To estimate GP or general practice nurse (GP/Nurse) demand in 2018/19, we 'fix' the number of patients per GP/Nurse at the average for September 2017 – December 2018 (the period preceding the publication of the 5-year framework for GP contract reform to implement The NHS Long Term Plan[16] and for which more reliable NHS Digital general practice workforce data are available). We use the difference between the number of GPs/Nurses that would have been required in future periods to meet this average (this is a simple average without any need adjustments) and the actual number of GPs/Nurses in post as a measure of the GP/Nurse shortfall in 2018/19. We then use our projections of activity growth in primary care to project GP and general practice nurse demand to 2030/31.

- For other direct patient care staff in general practice, we need a different approach as staff numbers in this group working in general practice have increased very rapidly since 2019, largely due to the formation of primary care networks[17] supported by funding delivered through the Additional Roles Reimbursement Scheme (ARRS).[18] We assume that the government's target of recruiting 26,000 additional FTE staff into specific direct patient staff roles by 2023/24 (relative to 2018/19) is met, and workforce demand for this group in 2024/25 and future years to 2030/31 increases at the projected rates for GPs and nurses.

- As the labour market for administrative or non-clinical staff in general practice is very different from that for patient care staff (GPs, nurses and other direct patient care staff), we make a simple assumption for this group: the ratio of administrative staff numbers to patient care staff numbers in general practice in 2018/19 is assumed to remain constant in future years to 2030/31 to arrive at workforce demand projections for this group.

Note that our projections of future general practice workforce demand do not vary across the scenarios discussed above, which focus on activity trends in hospitals.

4 Results

In 2021, the Health Foundation produced new projections of trends in the demand for care and therefore NHS activity.[19] These projections were based on actual historic growth across different service areas between 2009/10 and 2018/19. In this paper we have extended that analysis to project workforce demand to 2030/31.

Figure 5 presents our projections of FTE NHS workforce demand (for both the HCHS and general practice) to 2030/31 under the scenarios outlined above. For purposes of comparison, we include a scenario that corresponds to our 2021 funding projections analysis. In all the scenarios discussed above, projected annual workforce demand growth rates are higher in the initial years to 2024/25 and taper off in the second half of the decade. This reflects policy aspirations in two areas: 1) the NHS Long Term Plan, and 2) the elective care backlog. The NHS Long Term Plan committed additional funding for community care, mental health and general practice, all of which is allocated by 2023/24. In addition, we assume that additional elective care activity is needed to tackle the backlog, but that this is cleared by 2028/29.*

In our 'slow fall in hospital time' scenario (where the average length of stay declines by a modest 2% by 2030/31 and there is a relatively slow increase in the proportion of day cases), FTE NHS workforce demand is projected to increase by around 22% (around 314,000 FTE over and above estimated existing FTE vacancies) between 2021/22 and 2030/31, from around 1.5m to 1.8m (this is in order to maintain 2018/19 rates of care). Using the existing headcount-to-FTE ratio in 2021/22 (with 1.35m FTE corresponding to around 1.6m people employed in the NHS), this translates into workforce demand growing by a headcount of approximately 361,000 between 2021/22 and 2030/31 in this scenario (from around 1.7m to 2m people). In the scenario where falls in hospital time are faster (driven by more rapid declines in average length of stay and larger assumed increases in the proportion of day cases), projected FTE workforce demand increases by around 18% (around 262,000 FTE).† These aggregates mask underlying variation in projected demand for different staff groups (Table 2).

* For more detail on our modelling of the activity needed to clear the NHS elective care backlog, see the *Stabilisation* scenario in the REAL Centre's Funding Projections 2021. Rocks S, Boccarini G, Charlesworth A, Idriss O, McConkey R, Rachet-Jacquet L. Health and social care funding projections 2021. The Health Foundation; 2021 (https://doi.org/10.37829/HF-2021-RC18).

† As both scenarios assume that productivity gains are achieved (to varying degrees), the projections for both are lower than the projection corresponding to our 2021 analysis, in which FTE workforce demand is projected to be around 466,000 FTE higher in 2030/31 relative to 2021/22 (over and above the existing 110,000 FTE HCHS vacancies). This is lower than our projection of 488,000 additional FTE in 2021 because while FTE NHS workforce supply increased considerably more rapidly in the years between 2018/19 and 2021/22 relative to the preceding 8 years, this did not make a lasting dent in NHS HCHS vacancy rates.

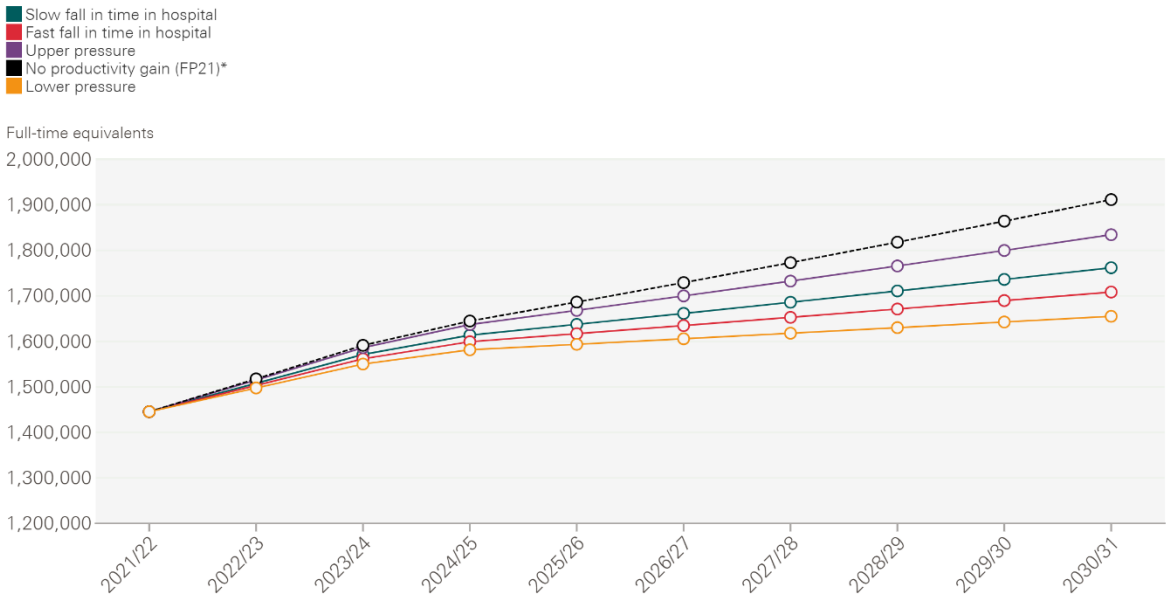
Table 2: Projected NHS workforce demand by staff group (FTE), 2021/22 – 2030/31

Staff group	Estimated demand: 2021/22	Projected increase in demand, 2021/22 to 2030/31				Average annual growth rate,* projected demand (2021/22 to 2030/31)			
		Upper pressure	Slow fall in time in hospital ('central' scenario)	Fast fall in time in hospital	Lower pressure	Upper pressure	Slow fall in time in hospital ('central' scenario)	Fast fall in time in hospital	Lower pressure
Overall (NHS HCHS and general practice)	**1,445,500**	**388,700**	**314,400**	**262,000**	**209,600**	**2.7%**	**2.2%**	**1.9%**	**1.5%**
NHS HCHS: all staff	1,308,800	306,600	232,400	180,000	127,600	2.4%	1.8%	1.4%	1.0%
HCHS doctors	134,900	31,600	23,900	18,500	13,100	2.4%	1.8%	1.4%	1.0%
HCHS nurses and health visitors	350,700	82,200	62,300	48,200	34,200	2.4%	1.8%	1.4%	1.0%
General practice: all staff	136,700	82,100	82,100	82,100	82,100	5.4%	5.4%	5.4%	5.4%
GPs	31,300	6,600	6,600	6,600	6,600	2.1%	2.1%	2.1%	2.1%
General practice nurses	18,300	3,800	3,800	3,800	3,800	2.1%	2.1%	2.1%	2.1%

Note: The projections in the table are rounded numbers deriving from the REAL Centre's analysis. Estimates of FTE workforce demand in 2021/22 include estimated existing FTE vacancies.

* These are compound annual growth rates.

Figure 5: Projected growth in FTE NHS workforce demand in England (FTE), NHS HCHS and general practice staff, 2021/22 – 2030/31

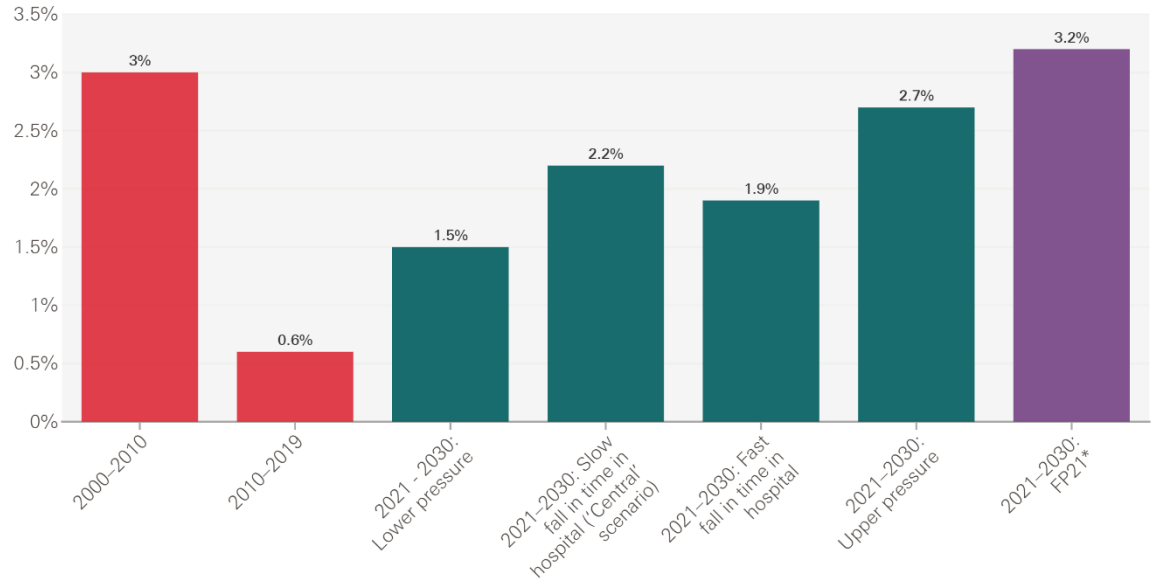


Source: REAL Centre analysis

Note: These projections derive from REAL Centre analysis of NHS Digital workforce data for the NHS HCHS and general practice and vacancy data for the NHS HCHS. Estimates of FTE workforce demand in 2021/22 include estimated existing FTE vacancies. 'FP21' refers to the REAL Centre's 2021 funding projections report.

Figure 6 shows the historic average annual growth rates between 2000/01 and 2020/21, and the projected growth in FTE NHS workforce demand in England (FTE), for the total of HCHS and general practice staff, between 2021/22 and 2030/31. In the scenario where we assume continued, but slower, falls in time in hospital, FTE workforce demand is projected to grow by around 2.2% a year in the decade to 2030/31, more than three times the observed average annual growth rate of 0.6% in FTE workforce supply between September 2010 and September 2019 (Figure 6) and twice the corresponding figure for the NHS HCHS alone (1% a year). Even if we assume more rapid declines in time in hospital, projected workforce demand growth amounts to around 1.9% a year to 2030/31. The more pessimistic 'upper pressure' scenario features a projected workforce demand growth rate of 2.7% a year over the coming decade, comparable to the 2000–2010 period when FTE HCHS staff numbers grew by around 3% a year (Figure 6).

Figure 6: Historic and projected average annual growth rates, NHS HCHS and general practice workforce in England (FTE), 2000/01 to 2030/31



Notes:

The growth rates in the figure are compound annual growth rates based on NHS Digital data on full-time equivalent NHS HCHS and general practice workforce numbers for 2000–2019 and REAL Centre projections of growth in workforce demand under alternative scenarios for 2021–2030.

The 2000–2010 data were compiled by the Health and Social Care Information Centre (http://data.parliament.uk/DepositedPapers/Files/DEP2011-0900/DEP2011-0900.pdf) and the 2010–2019 data were derived from NHS Digital's publication of NHS workforce statistics (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics) and general practice workforce statistics (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).

'FP21' refers to the REAL Centre's 2021 funding projections report.

5 Discussion

For several years, and well before the COVID-19 pandemic, workforce shortages have been a huge concern for the NHS. The pandemic has exacerbated those pressures and the evidence points to increasing demand for health care services in the coming years.

The NHS staffing shortfall can only be addressed through comprehensive long term workforce planning, for which rigorous analysis of the future demand for and supply of staff is indispensable. Labour supply growth rates in the past have tended to be a function of funding and labour market policy choices rather than being driven by trends in demand or activity growth. Our projections highlight the relevance of those trends for ensuring that there will be sufficient staff in the future to deliver desired levels of care. They provide a useful sense of the scale of the NHS workforce demand challenge over the coming decade.

Our analysis underlines the importance of accounting for changes in health service productivity and quality in projecting future NHS workforce demand. The estimates we provide showcase the relevance of accounting for changes in the average length of hospital stay and the proportion of elective care delivered through day cases. While these variables are likely to affect productivity by driving changes in the amount of staff time required per patient, it is unclear how significant their impact is as a proportion of overall changes in productivity. Future research is required to study these variables further alongside other potential drivers of changes in NHS productivity, such as workforce composition and technological change.

It is also vital to note that any projected reductions in the demand for NHS staff linked to these variables are limited to the hospital sector – spill-over effects into community care, adult social care and general practice should be considered separately in arriving at more refined estimates of future workforce demand. The Health Foundation's ongoing work on health care activity and demand modelling[20] will offer a more rigorous basis for future NHS workforce demand projections research.

Having considered our projections of NHS workforce demand to 2030/31, perhaps the first question that arises is regarding how these compare to projections of future workforce supply. The REAL Centre will provide updated NHS workforce supply projections in an upcoming report, including a 'deep dive' into the key workforce areas of nursing and general practice. The government commissioning NHS England to produce a strategy for the future workforce is a step forward,[21] but a sustained policy focus on comprehensive long term workforce planning backed by the requisite funding is needed now more than ever.

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