REAL Centre Projections
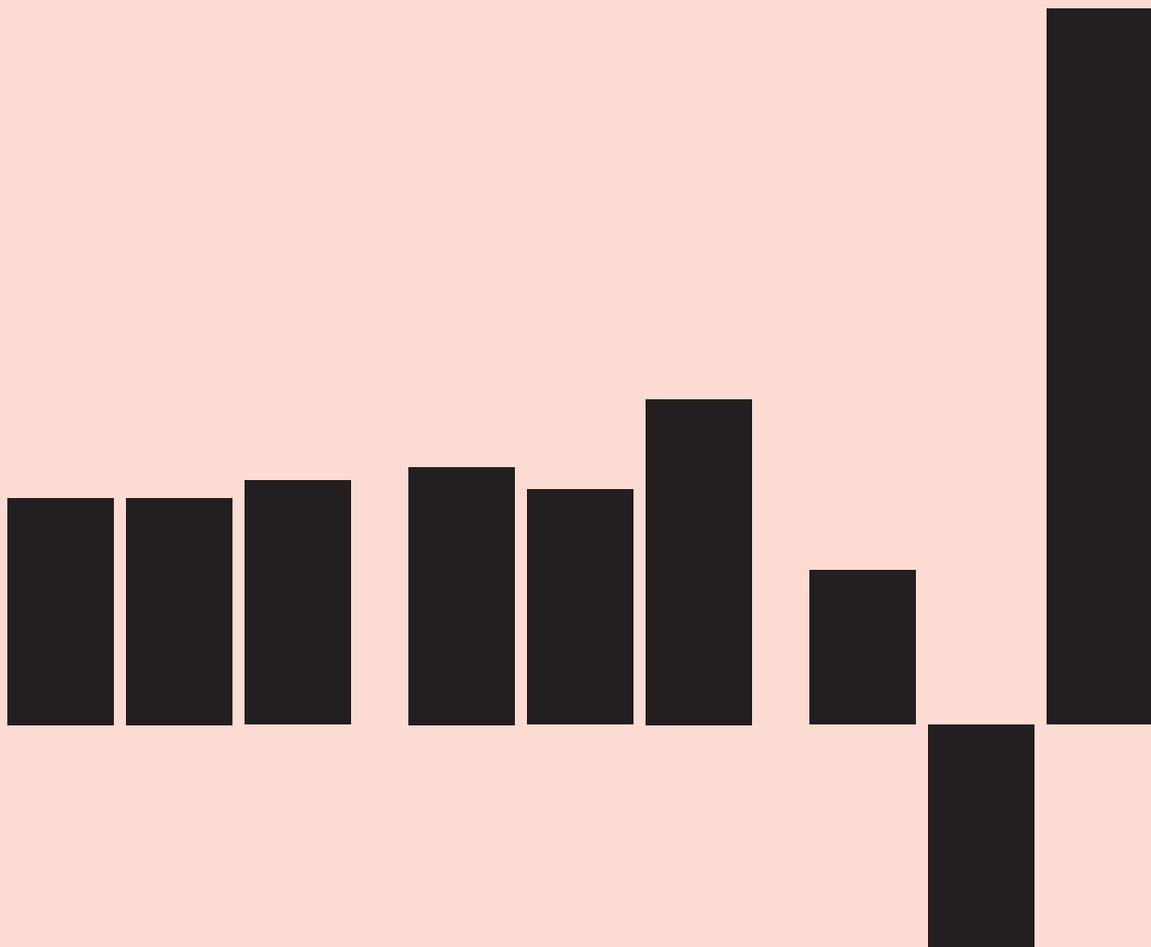
NHS workforce projections 2022

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The
Health
Foundation

About the REAL Centre

The Health Foundation's REAL Centre (research and economic analysis for the long term) provides independent analysis and research to support better long-term decision making in health and social care.

Its aim is to help health and social care leaders and policymakers look beyond the short term to understand the implications of their funding and resourcing decisions over the next 10–15 years. The Centre will work in partnership with leading experts and academics to research and model the future demand for care, and the workforce and other resources needed to respond.

The Centre supports the Health Foundation's aim to create a more sustainable health and care system that better meets people's needs now and in the future.

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Executive summary

Workforce shortages represented the single biggest challenge facing the NHS and adult social care in England well before COVID-19. But the pandemic has driven increased demand for health care, growing waiting lists and a substantial elective care backlog, while impacting negatively on staff wellbeing and absence. This makes workforce planning all the more urgent for recovery, both from a staff recruitment, retention and wellbeing perspective, particularly in light of ongoing cost-of-living pressures, and in terms of patient safety and satisfaction.

This report provides the REAL Centre's projections of future NHS workforce **supply** – the number of staff likely to be in post – and **demand**, the number of staff likely to be required. Both are crucial for comprehensive long-term workforce planning and wider resource planning. In our analysis, a gap between projected workforce supply and demand indicates that the NHS is unlikely to be able to deliver 2018/19 standards of health care using existing care models.

At an overarching level, our supply and demand projections cover the whole of the NHS Hospital and Community Health Service (HCHS) sector and general practice workforce in England. Our in-depth analysis focuses on two staff groups: **registered nurses** (across all sectors but focusing on the HCHS), and **GPs and other patient care staff** working in general practices and primary care networks (PCNs). Together these groups account for nearly 3 in 10 of the 1.4 million full-time equivalent (FTE) NHS staff in England.

Nursing and general practice have consistently been afflicted by staff shortages and high workload pressures over the past decade. In this report we present different scenarios based on varying assumptions to project the future supply and demand of registered nurses and patient care staff in general practice. These are projections rather than forecasts: we build on available data to hypothesise how future workforce gaps might evolve, while acknowledging the uncertainties inherent in our assumptions. This report explores the levers that policymakers could focus on to mitigate these gaps in workforce.

On the workforce supply side, long training pathways for clinical staff and changes in service models, workforce composition (the skill mix) and working patterns over time all mean that health care workforce planning requires a comprehensive longer term focus. Regular assessments of NHS workforce supply-demand gaps will be indispensable in order to close those gaps within a specified timeframe. This report aims to foster greater urgency and focus in this area and cautions against continued policy short-termism.

Scenarios

To estimate how many NHS staff are likely to be needed in future years (workforce demand), we project the future health care activity needed to keep up with underlying demand pressures, driven by demographic and morbidity changes. Our analysis also accounts for additional pressures on future health care activity, including additional funding linked to *NHS Long Term Plan* commitments and the additional activity needed to clear the elective care backlog by 2028/29. We focus on a workforce demand scenario that assumes there are some productivity gains in the acute hospital sector from reductions in the average length of stay and a further shift to day case activity, but that the rate of change is less than over the past decade.

Our detailed analysis of the future supply of registered nurses, GPs and other patient care staff in general practice is built around three scenarios:[*]

1. The '**current policy**' scenario assumes that workforce numbers increase in line with current trends and policies already being implemented to promote staff recruitment and retention.

2. The '**optimistic**' scenario assumes that workforce numbers increase more rapidly than in the 'current policy' scenario, with sustained policy action and its effective implementation closing existing workforce gaps over the decade to 2030/31.

3. The '**pessimistic**' scenario assumes that workforce numbers grow more slowly relative to the 'current policy' scenario or even decline, driven by a lack of additional policy action and workforce planning, or failure of current policy action, particularly beyond 2023/24. It envisions a 'worst case' world in which the risks posed by COVID-19 to NHS staff recruitment and retention not only materialise but significantly exacerbate existing shortfalls.

Our projections

Overall NHS workforce supply and demand

Our high-level analysis points to an overall workforce supply-demand gap of around 103,000 FTE across the NHS HCHS and general practice, accounting for both clinical and non-clinical staff,[†] in England in 2021/22 (around 7% of estimated FTE workforce demand). To deliver 2018/19 standards of NHS care and accounting for current workforce supply trends and *NHS Long Term Plan* commitments,

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[*]   See Chapter 4, Chapter 5, Annex C and Annex E for a full breakdown of scenario assumptions.

[†]   These high-level projections account for all FTE clinical and non-clinical staff in the NHS HCHS and general practice, except GP trainees and locums.

this gap is projected to increase to around 180,000 FTE by 2024/25 before declining gradually to a still substantial 160,000 FTE in 2030/31 (around 9% of projected demand).

There are two reasons why this estimate of a workforce gap of 160,000 FTE by the end of the decade is considerably lower than corresponding estimates in previous work. First, we have updated our workforce demand projections to account for potential future reductions in hospital staff time per patient as a result of further falls in the average length of hospital stay and more treatments provided on a day case basis. Second, we use updated workforce supply data to 2021/22, whereas in previous work we used data up to 2018/19 only. Over the past 3 years NHS workforce numbers have increased at a faster rate than over the previous decade (as discussed in section 3.2).

Registered nurses

Registered nurses are indispensable to health and social care provision. Around 370,000 registered nurses work in the HCHS, general practice, adult social care and independent health care providers in England. The NHS HCHS employs over 4 in 5 (around 85%) of this active registered nurse workforce and there are better data available for HCHS nurses relative to other sectors.

Even before the pandemic, this group represented the most pressing area of NHS workforce shortfall. In the HCHS workforce, FTE registered nurses accounted for around 2 out of every 5 vacancies in England between April–June 2017 and October–December 2021, even though they account for just over 1 in 4 staff. The registered nurse vacancy rate indicates that about 1 in 10 funded FTE NHS HCHS registered nurse posts was unfilled at any point. The impact of the pandemic on the nurse workforce is still unfolding, but emerging evidence of workload pressures and burnout points to substantial retention risks. In the medium term, there is also uncertainty around the impacts on student nurse registration and recruitment (see Chapter 4).

Our nurse supply projections, obtained using the REAL Centre nurse supply model,[*] are summarised in Table 1 and Figure 1. In our short-term projections, the difference between nurse supply in 2020/21 and 2023/24 is relatively small in all scenarios. However, in the longer term projections, significant differences emerge between the three scenarios, highlighting the importance of taking a longer term view. Under current policy, our projections show that the NHS HCHS is likely to face a shortage of 50,600 FTE nurses in 2023/24 and shortages will continue for the rest of this decade, with a shortfall of 30,300 FTE nurses by 2030/31.

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[*] Cave S, Woodham E, Derbyshire K, Lewis S, Wildblood R, Shembavnekar N. *Nurse supply model: overview.* The Health Foundation; 2021 (www.health.org.uk/publications/nurse-supply-model-overview).

Table 1: Potential FTE nurse supply and demand in the NHS HCHS in England, 2021/22–2030/31

	2021/22	2023/24	Projected supply-demand gap, 2023/24	2030/31	Projected supply-demand gap, 2030/31	Projected average (compound) annual growth rate, 2021/22–2030/31
Demand	350,700	369,000		412,900		1.8%
Supply: Current policy	306,200	318,400	-50,600	382,600	-30,300	2.5%
Supply: Optimistic	306,200	322,800	-46,200	457,300	44,400	4.6%
Supply: Pessimistic	302,800	305,100	-63,900	272,300	-140,600	-1.2%

Source: REAL Centre analysis based on the nurse supply model (using a range of data sources). Numbers are rounded.

Figure 1: Potential FTE nurse supply and demand shortfall in the NHS HCHS in England, 2021/22–2030/31
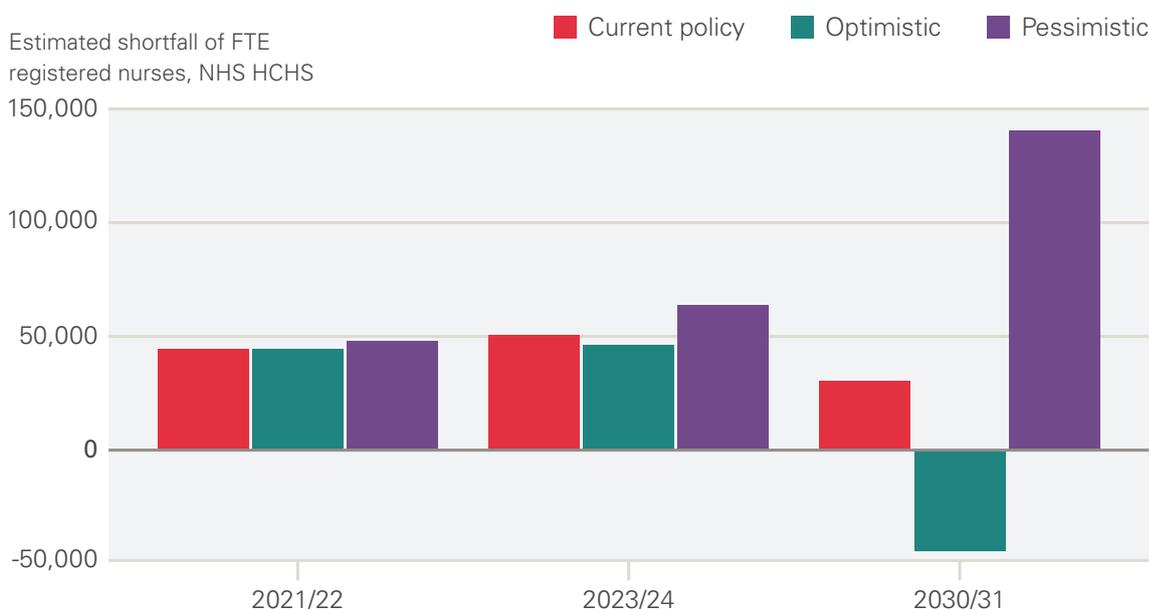
Source: REAL Centre analysis based on the nurse supply model (using a range of data sources).

Note: Numbers are rounded. The slight differences in the estimated shortfall of FTE registered nurses across the three scenarios in 2021/22 arise because 2020/21 data currently represent the final full year of workforce data incorporated in the REAL Centre nurse supply model (so that 2021/22 nurse supply estimates are projections and vary slightly across the three scenarios). In the optimistic scenario, we project a shortfall in nurse supply in 2023/24 but supply potentially exceeding demand in 2030/31 (this explains the negative shortfall projection in that scenario).

Progress towards the 50,000 nurses target

In its 2019 manifesto the government set a target of recruiting 50,000 additional FTE registered nurses in the NHS HCHS and general practice in England by the end of the current parliament. This implies increasing the number of FTE registered nurses in the NHS from around 301,000 in September 2019 to around 351,000 by March 2024. The government appears to be on track to meet the target, largely through continuing substantial increases in international recruitment, on the back

of record recent increases in the number of nurses trained in non-European Union (EU)/European Economic Area (EEA) countries newly registering with the Nursing and Midwifery Council (NMC). However, our analysis suggests that the 50,000 target is not sufficient to address the projected demand for registered nurses and meeting it would still leave the NHS facing a shortage of around 38,000 FTE HCHS and general practice nurses relative to projected demand in 2023/24.

Patient care staff in general practice

General practice in England covers around 149,000 FTE staff (as of December 2021) working across practices and PCNs. It comprises four key staff groups: GPs (accounting for roughly a quarter – 24% – of general practice staff), nurses (another 11%), other direct patient care (DPC) staff (around 16%) and administrative and non-clinical staff (around 49%). General practice is increasingly taking the form of multidisciplinary teams, with a rapid expansion of roles including clinical pharmacists, physiotherapists and social prescribing link workers over the past 2 years. Staff numbers in these three roles more than quadrupled between December 2019 and December 2021.

Building on previous research,[*] we used publicly available NHS Digital and Health Education England (HEE) data to assess how future numbers of fully qualified, permanently employed GPs,[†] nurses and other DPC staff in general practice are likely to change in the decade to 2030/31.

Our projections of the GP supply-demand gap to 2030/31 are presented in Table 2 and Figure 2. As it takes at least a decade to train a fully qualified GP, the substantial difference between the projected GP shortfall in 2030/31 in the optimistic and pessimistic scenarios is largely driven by varying assumptions regarding GP leaver rates and the expansion and integration of DPC staff groups in general practice over the rest of this decade. It is worth emphasising that in the optimistic and pessimistic scenarios, the projected GP shortfall in 2023/24 is slightly higher than in the current policy scenario. This reflects the potential for increased supervisory responsibility for newer roles combining with existing workload pressures to temporarily ratchet up GP demand.

In the optimistic scenario, with sustained policy support and effective integration of newer general practice staff roles in the medium term, the GP shortfall can be contained to around 3,300 FTE by 2030/31. Conversely, the lack of policy action and inadequate support for integration and longer term planning embodied in the pessimistic scenario results in a projected GP shortfall that is around six times larger by 2030/31 (around 20,400 FTE).

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[*]   Undertaken by the Health Foundation in collaboration with The King's Fund and the Nuffield Trust: Beech J, Bottery S, Charlesworth A, Evans H, Gershlick B, Hemmings N, Imison C, Kahtan P, McKenna H, Murray R, Palmer B. *Closing the gap: key areas for action on the health and care workforce*; 2019 (www.health.org.uk/publications/reports/closing-the-gap).

[†]   Unless stated otherwise, all projections refer to FTE numbers and we focus on fully qualified, permanently employed GPs (all GPs excluding GPs in training and locum GPs).

Table 2: FTE demand and supply estimates and projections for qualified permanent GPs in England, 2021/22–2030/31

	Current policy scenario		Optimistic scenario		Pessimistic scenario	
	GP demand	GP supply	GP demand	GP supply	GP demand	GP supply
2021/22	31,300	27,000	31,300	27,000	31,300	27,000
Shortfall	-4,200		-4,200		-4,200	
2023/24	33,700	26,400	35,200	26,900	35,400	25,700
Shortfall	-7,300		-8,300		-9,700	
2030/31	37,800	27,100	34,400	31,100	39,700	19,400
Shortfall	-10,700		-3,300		-20,400	

Source: Authors' analysis based on data from NHS Digital and Health Education England.

Note: The numbers in the table are rounded and refer to FTE qualified permanent GPs (ie all GPs excluding GPs in training and locum GPs); 2021/22 GP supply data are for March 2022 (source: NHS Digital).

Note: The shortfall is calculated as the difference between GP supply and demand. Due to rounding, the shortfall estimates presented in the table do not all align precisely with the differences between GP supply and demand in the corresponding cells.

Figure 2: Potential FTE GP supply and demand shortfall in the NHS in England, 2020/21–2030/31*
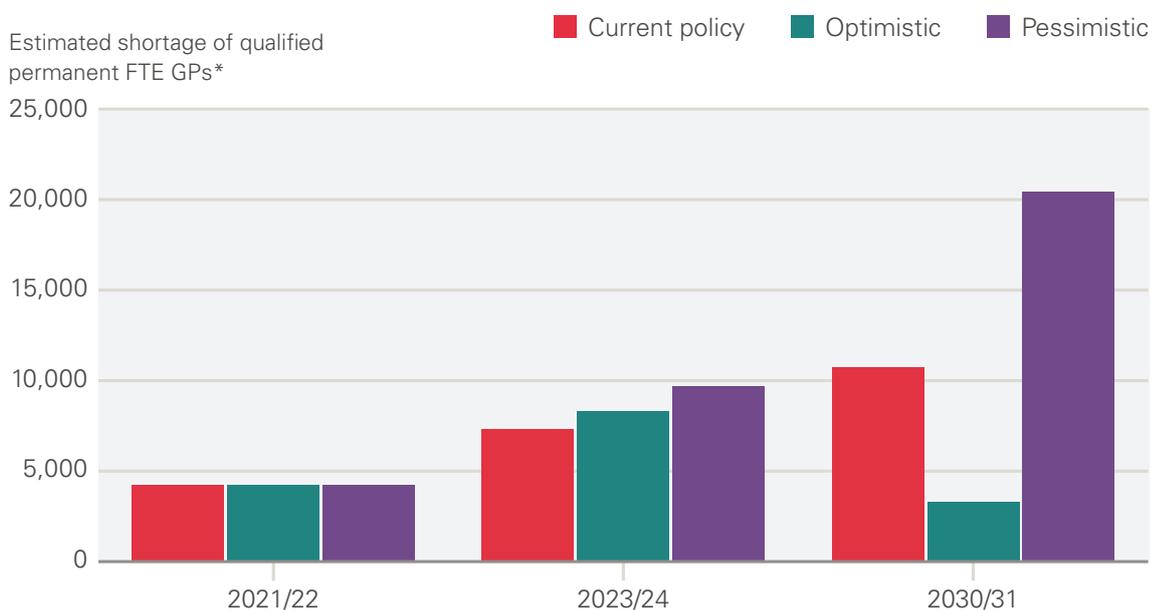
Source: REAL Centre analysis based on NHS Digital and HEE data.

*This refers to qualified permanent GPs (all GPs excluding GPs in training and locum GPs). Note: Numbers are rounded.

The scale of the projected GP shortfall is substantial. Under current policy, we project that by 2030/31 the NHS would have around 27,100 qualified, permanent FTE GPs, around 10,700 less than we project would be needed – a shortfall of over 1 in 4 GP posts. In all three scenarios, we also project that there will be a persisting shortage in the number of FTE general practice nurses over the decade to 2030/31.

Progress towards government targets

In its 2019 manifesto the government set a target of recruiting 6,000 additional FTE GPs (including GP trainees and locums)* and 26,000 additional FTE patient care staff other than GPs and nurses in specified general practice roles in England by 2023/24. In all of our scenarios, we project that the 6,000 GP target will not be met. Under current policy, we project that the total number of FTE GPs might be around 3,000 more in 2023/24 relative to 2018/19, but the number of qualified permanent FTE GPs will have fallen, so any overall increase will be attributable to higher numbers of GP trainees and locums. The data and evidence so far on whether the government's other target will be met, of recruiting 26,000 additional FTE professionals in Additional Roles Reimbursement Scheme (ARRS)-funded DPC roles in general practice, are unclear. However, accounting for rapid increases in recruitment to these roles in the past 2 years, our modelling assumes that this target is met in the current policy and optimistic scenarios, but not in the pessimistic scenario.

Table 3 summarises our estimates of the supply-demand gap for registered nurses and patient care staff in general practice in the current policy scenario in 2021/22 and 2030/31.

Table 3: Potential FTE supply and demand, registered nurses (NHS HCHS and general practice), qualified permanent GPs and other DPC staff in general practice in the NHS in England in the current policy scenario, 2021/22–2030/31

	Supply, 2021/22	Estimated demand, 2021/22	Estimated supply-demand gap, 2021/22	Supply, 2023/24	Estimated demand, 2023/24	Estimated supply-demand gap, 2023/24*	Supply, 2030/31	Estimated demand, 2030/31	Estimated supply-demand gap, 2030/31
Registered nurses in the NHS HCHS and general practice	322,800	369,000	-46,200	334,900	388,700	-53,700	398,300	435,000	-36,700
Qualified permanent GPs	27,000	31,300	-4,200	26,400	33,700	-7,300	27,100	37,800	-10,700
Other DPC staff in general practice (excluding GPs and nurses)**	25,400	n/a*	n/a*	38,800	n/a*	n/a*	55,400	n/a*	n/a*

Source: REAL Centre analysis based on the nurse supply model and NHS workforce data from NHS Digital and Health Education England. As the numbers in the table are rounded, estimates of the workforce supply-demand gap may not precisely match the corresponding supply and demand figures.

* The estimate for registered nurses in the NHS HCHS and general practice is a projection under the 'current policy' scenario, derived from the REAL Centre nurse supply model. This differs from our estimate of the projected nurse supply-demand shortfall in 2023/24 if the government's 50,000 NHS nurses target is met, which is around 38,000 FTE nurses.

**As discussed in section 5.3.3, we do not estimate the future demand for other DPC staff in general practice.

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*   Our projections in this report, however, focus on the number of fully qualified, permanently employed GPs (all GPs excluding GP trainees and locums).

Implications

Our report underscores five key workforce planning themes (see Chapter 6 for fuller analysis):

1. Addressing NHS workforce shortages requires comprehensive long-term planning and acknowledgement that improvement will take many years.

2. 'Top-down' targets are unlikely to be effective in addressing workforce supply-demand shortfalls. Policymakers should account for geographic and sector variation in workforce supply and demand.

3. Workforce policies need to be fully costed and funded to be implemented effectively.

4. Joined-up policymaking needs to be underpinned by substantive research on the drivers of workforce supply and demand as well as rigorous projections analysis.

5. The gaps in accessible data for the NHS workforce that this report underscores should be acknowledged and mitigated. This dovetails with the recent findings of the Goldacre Review on the lifesaving potential of quality health data provision.

Our projections also have wider systemic implications for the NHS:

- At around 103,000 FTE, the scale of the estimated overall NHS workforce supply-demand gap in 2021/22 was substantial. Even if we assume that future increases in the demand for NHS staff can be partially contained through a reduction in average staff time per patient over the coming decade, the supply-demand gap is projected to grow to around 160,000 FTE by 2030/31 (around 9% of projected staff demand). This suggests that existing NHS care models will not be able to deliver 2018/19 standards of care through the coming decade without compromising on quality, safety, productivity and staff wellbeing.

- The government appears to be on track to meet its 50,000 nurses target by 2023/24, largely through sustained substantial increases in international nurse recruitment. However, this would still leave the NHS short of around 38,000 FTE HCHS and general practice nurses relative to projected demand in 2023/24. In the current policy scenario, the NHS is projected to face a persisting supply-demand shortfall of around 36,700 FTE nurses in 2030/31. In our optimistic scenario, concerted policy action aimed at improving nurse retention and domestic training numbers can bridge this gap in the NHS HCHS – but not for general practice nurse numbers – by 2030/31.

- This report raises significant questions about general practice workforce supply. In all scenarios, we project a persistent shortfall of FTE GPs and general practice nurses. In the pessimistic case, the GP supply-demand gap grows to around 20,400 FTE by 2030/31 – effectively 1 in 2 GP posts based

on projected demand. Containing this gap to around 3,300 FTE (1 in 10 projected GP posts) – our optimistic scenario – will require the effective implementation of policies aimed at boosting NHS GP retention rates over the coming decade. Equally, it will hinge on how substantially the potential of more multidisciplinary general practice teams is realised in the latter half of the decade.

Conclusion

This report lays bare the scale of the challenge facing policymakers in addressing endemic NHS workforce shortages. Registered nurses and patient care staff in general practice have been core parts of the fight against COVID-19 and will continue to play a vital role in the recovery. But against a backdrop of already substantial workload pressures, burnout, funding constraints and a cost-of-living crisis, policy action is urgently needed to support improvements in NHS staff recruitment and retention.

NHS workforce planning has been beset by short-termism and a preference for expediency over requirement. There is no 'silver bullet' solution to England's workforce shortages. But this report adds to a growing body of evidence that points to the need for a comprehensive long-term workforce strategy. Long-term planning will, by definition, bear fruit over the next few years, but it has never seemed more pressing than at present.

1. Introduction

1.1 Context

The past 2 years have understandably been dominated by the urgent response to COVID-19. But while the pandemic hit all sectors of the economy hard, its impact on the health and social care workforce has been particularly substantial – not least because these workforces entered the pandemic under severe pressure. In fact, workforce shortages are widely seen to be the biggest single challenge facing both sectors in England.[1]

Between 2010/11 and 2018/19, growth in NHS staff numbers in England was well below estimated increases in activity levels.[1] Much of the NHS workforce also experienced real-terms decreases in pay during this period.[2] Against this backdrop, the commitment and dedication displayed by the NHS and social care workforce over the course of the pandemic are all the more striking.

Existing workforce pressures are underpinned by a lack of comprehensive long-term workforce planning, particularly the absence of regularly published and independently verified projections of workforce supply.[3] Such projections are indispensable for any assessment of whether current trends in workforce supply would be sufficient to meet projected demand without imposing unrealistic or unsustainable workforce productivity targets; what it would take to close the gap if there are projected shortfalls; and whether there are particular areas of the health service where future workforce shortages appear the most likely or acute.

The urgency of such an assessment is underlined by 2021/22 NHS Staff Survey results that provide evidence of increasing proportions of staff experiencing workload pressures and considering leaving their roles relative to pre-pandemic levels.[4] 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.[5]

This report builds on and extends the projections and recommendations made in 2019's *Closing the gap*.[6] This featured future registered nurse[*] and GP supply and demand projections to 2028/29. It made a number of policy recommendations that were subsequently reflected in the government's introduction of cost-of-living grants for degree-level nursing, midwifery and many allied health students in 2020[7] and the shift towards more multidisciplinary general practice staff teams.[8] *Closing the gap* also emphasised the *NHS Long Term Plan* ambition to 'ensure a sustainable

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[*]   Where this report uses the word 'nurse', it refers to registered nurses.

overall balance between supply and demand across all staff groups'.[9] This is all the more significant given the unintended consequences and hidden costs of NHS staffing shortages, including additional spending on agency staff, lower productivity and system inefficiency.

This report highlights the risks posed by growing NHS workforce shortages to the ability of the NHS to deliver pre-pandemic standards of care, calling for policy action and regular, longer term workforce planning. While there is relatively little evidence on how workforce undersupply affects health service delivery,[10] one recent study points to a direct link between registered nurse vacancy rates and patient safety in hospitals.[11]

Workforce planning is also inextricably linked with NHS funding choices and pressures. While the NHS did not suffer to the same degree as other areas of public spending from the past decade of austerity,[12] it did not receive the funding needed to meet growing demand pressures.[13,*] In 2021, the Health Foundation's REAL Centre projected that to maintain 2018/19 rates of care, the NHS would require real-terms funding increases of 3.2% to 3.5% a year on average over the 2018/19–2030/31 period.[12] This amounts to between £63bn and £72bn in additional annual funding in 2030/31 relative to 2018/19 (in 2021/22 prices). With permanent and bank staff spending accounting for just under half of the NHS's revenue expenditure (44% in 2020/21),[14] the size and composition of the future NHS workforce are key to any consideration of long-term service sustainability.

The government has acknowledged the workforce planning gap and has commissioned NHS England to develop a workforce plan.[14] However, it is vital that planners initiate further policies to address longstanding workforce shortages across the NHS and social care. The absence of a long-term focus, coupled with the fact that investments in health care staff training, recruitment and retention can take years to bear fruit, strengthen the need for regular projections of future workforce supply and demand.

In this report, we present high-level supply and demand projections for the NHS Hospital and Community Health Service (HCHS) workforce in England, followed by detailed projections for two key 'workforce pressure points': **registered nurses** (across all sectors but focusing on the HCHS), and **GPs and other patient care staff** working in general practices and primary care networks (PCNs).[†] If we consider the HCHS and general practice workforces in total, our projections account for nearly 3 in 10 (29%) of the 1.4 million full-time equivalent (FTE) staff in this vital labour market in England.[‡]

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* The gap in social care funding is also well documented.

† Our projections cover only staff directly employed by the NHS. Due to data limitations, non-NHS provision of NHS health care (eg through agency staff recruitment or contractual services provided by the independent sector to the NHS) is beyond the scope of our analysis.

‡ This is based on NHS Digital data for December 2021: of 1.36 million FTE staff in the NHS HCHS and general practice workforces in England, our projections cover around 318,000 FTE HCHS nurses and health visitors, 36,500 GPs, 16,500 general practice nurses and 24,000 other DPC staff in general practice.

Crucially, these are *projections* rather than *forecasts*: we seek to assess the scale of the NHS workforce planning challenge by presenting three alternative scenarios for future workforce gaps without attaching probabilities to individual scenarios, assumptions or risks. Inevitably, the assumptions we make come with some degree of uncertainty: there will always be some forces influencing workforce supply and demand that are impossible to model or foresee. Instead, these projections emphasise the scope for policy action that could mitigate NHS workforce gaps by 2030/31.

1.2 Why focus on nursing?

Registered nurses account for around a quarter (26%) of the overall FTE HCHS workforce (see Chapter 2). NHS Digital quarterly vacancy data suggest that between the quarters to June 2017 and December 2021, FTE registered nurse vacancies consistently accounted for around 2 in 5 (roughly 40%) of all FTE vacancies in the overall NHS HCHS workforce, with around 1 in 10 FTE NHS registered nurse posts being vacant.[15] Persistently high nurse vacancy rates can undermine the ability of the NHS to deliver safe care. This underlines why achieving sustainability in registered nurse numbers will be key to addressing NHS workforce shortages.

The 2019 Conservative party manifesto committed to increase the number of nurses in the NHS in England (across the NHS HCHS and general practice) by 50,000 FTE by the end of 2023/24 relative to September 2019.[16] The government appears to be on track to meet this target, largely by relying on international recruitment.[17] However, we have previously argued for a move away from this top-down, target-centred approach towards one that is more effective and responsive, prioritising comprehensive longer term workforce planning.[3] This report explores future nurse supply under alternative scenarios and considers longer term policy implications.

Adult social care is another sector in which nursing workforce shortages have become more prominent in recent years, even more so after the pandemic. Skills for Care data highlight that the number of registered nurse jobs in adult social care declined by around a third between 2012/13 (around 51,000 jobs)[18] and 2020/21 (around 34,000 jobs). Between 2019/20 and 2020/21 alone, the number of registered nurse jobs in the sector fell by 5% (around 1,800 jobs). Alongside this, the adult social care registered nurse vacancy rate nearly doubled from 9.5% to 18% between March 2021 and March 2022.[19]

To help us understand the dynamics of nurse supply, the REAL Centre commissioned Decision Analysis Services Ltd (DAS) to develop a nurse supply model.[20] Used in this report, the model generates evidence-based estimates of the

future supply of nurses in England, accounting for academic literature and input from multiple stakeholders on the drivers of nurse supply and how they interact with each other.[*]

1.3 Why focus on general practice?

General practice plays a vital role in the health system, caring for patients out in the community throughout their lives. General practice deals with a range of both chronic and acute conditions while also undertaking other important work such as health promotion. Research points to health systems with a strong primary care foundation being more efficient, equitable and cost effective and having better patient outcomes relative to specialist care based systems.[21]

General practice is served by a workforce of around 149,000 FTE staff (as of December 2021) across general practices and PCNs. This covers a headcount of around 189,000 in general practices and around 10,700 in PCNs.[†] There are four major staff groups: GPs, general practice nurses (covered by the government's 50,000 nurse target as discussed), other direct patient care (DPC) staff in varied roles[‡] and administrative or non-clinical staff.

The Health Foundation does not have a sophisticated model of general practice workforce supply similar to the nurse supply model. However, the sustained policy debate and media scrutiny faced by GPs over the past 2 years and the ongoing shift towards more multidisciplinary general practice teams point to there being a strong case for an updated analysis of workforce supply-demand gaps in general practice, building on our previous research.[6] As with nursing, the government has set two high-profile targets for general practice workforce expansion: to recruit 6,000 more GPs[16] and 26,000 additional FTE DPC staff in general practice by the end of 2023/24 (relative to 2018/19).[8] Our analysis offers insights into the policies that are likely to be required if these targets are to be met, particularly the 26,000 DPC target. Our projections of future general practice workforce supply and demand cover GPs, general practice nurses and DPC staff in general practice.

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*   A full description of the nurse supply model and its underlying assumptions is provided in Derbyshire K, Cave S, Woodham E, Wildblood R, Shembavnekar N. *Nurse supply model: a review of economic factors affecting nurse supply*. The Health Foundation; 2021 (www.health.org.uk/publications/reports/nurse-supply-model-a-review-of-economic-factors-affecting-nurse-supply).

†   As some of these staff work across practices and PCNs, the two numbers cannot be added up to arrive at an overall headcount. Ongoing data quality issues (see https://digital.nhs.uk/data-and-information/publications/statistical/primary-care-network-workforce/31-march-2022/data-quality---march-2022) regarding the NHS Digital Primary Care Network Workforce dataset also mean estimates of the size and composition of the PCN workforce should be treated with caution.

‡   The DPC staff group covers a wide range of very different staff groups – see section 2.4 for further detail.

1.4 About this report

In this report, we look at trends in the NHS workforce in England over time, considering emerging evidence about the impacts of COVID-19. We then discuss how the supply of and demand for registered nurses and patient care staff in general practice might evolve in the years to 2023/24 (the end of the current parliament) and longer term to 2030/31. Our assumptions are based on what we know from existing trends and extensive stakeholder engagement.

We present our analysis using scenarios that represent varying levels of policy action or inaction to explore how existing shortages may improve or worsen over the decade to 2030/31. The key questions that we seek to answer are:

- What is the size and composition of the NHS workforce in England, in particular the nursing and general practice workforces, and how has that changed over time?

- What is the overall outlook for workforce supply and demand in the NHS in England up to 2030/31?

- How many FTE registered nurses are likely to join (or be retained in) the NHS HCHS and the wider nursing workforce in the decade to 2030/31 and how does this compare with the projected demand for nurses? How might policy choices around the key nurse supply routes (domestic education, international recruitment and nurse retention) affect these numbers under alternative scenarios?

- How many FTE qualified permanent GPs, nurses and other DPC staff are likely to join (or be retained in) the general practice workforce in the decade to 2030/31? How might policy action influence these numbers in alternative scenarios, particularly when it comes to staff retention and the increasingly multidisciplinary nature of general practice teams?

We hope that this report will provide useful insights for future government policymaking, inform the political debate and improve understanding of workforce supply in the vital areas of nursing and general practice.

2.
The state of the NHS workforce and the impact of COVID-19

2.1 Introduction

This chapter profiles the overall NHS HCHS workforce in England to contextualise the detailed analysis and projections in subsequent chapters. It examines the impact of the COVID-19 pandemic on the nursing and general practice workforce in England and assesses what this could mean in the coming years. The issues we discuss are often applicable to the wider NHS workforce, but given this report's scope we have limited our discussion to the nursing and general practice workforce. Unless otherwise stated, we refer to staff numbers in FTE.

2.2 The NHS HCHS workforce

The NHS HCHS workforce in England accounts for around 1.2 million FTE staff, equating to a headcount of almost 1.4 million.[22]

The HCHS workforce includes a broad range of roles in hospital and community care, categorised in three main staff groups:*

- **Professionally qualified clinical staff** (doctors, nurses, midwives, professionally qualified ambulance staff, and scientific, therapeutic and technical staff)† account for just over half of all HCHS staff. Registered nurses and health visitors are the single largest staff group, accounting for around a quarter (26%) of the total.

- **Clinical support staff** account for just under a third (31%) of the total. These staff provide support to professionally qualified clinical staff and cover a range of roles including healthcare assistants, nursing assistants, and ambulance and allied health support personnel.

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*   In this chapter, unless otherwise specified, we have used NHS Digital workforce statistics data up to December 2021, the latest available at the time of our analysis.

†   The scientific, therapeutic and technical staff in the HCHS cover a wide range of allied health professions (including occupational therapists, physiotherapists, radiographers and other roles), health care scientists and other staff groups.

- **NHS infrastructure support staff** account for another 16% of the HCHS total. This covers managers, senior managers, central functions staff, and hotels, property and estates staff.

Given the past 2 years have been dominated by the impact of COVID-19, when interpreting workforce trends it is important to keep in mind that recent data are likely to reflect significant increases in staff numbers and changes in the staff mix – at least some of which are likely to be temporary. Table 4 highlights short-term changes in the overall HCHS workforce in England between December 2020 and December 2021.

Table 4 also provides a breakdown by staff group for the decade to December 2021 to explore historical trends. Overall, the compound annual growth rate for the HCHS workforce between December 2020 and December 2021 was 2%, just over half the rate in the final year of the data between December 2020 and December 2021 (3.6%). Almost all staff groups registered considerably slower annual growth rates over the decade to December 2021 relative to the 1 year between December 2020 and December 2021, except for ambulance support staff.

Table 4: Changes in FTE staff numbers in the NHS HCHS by staff group, England, December 2011–December 2021

Staff group	December 2011 FTE	December 2020 FTE	December 2021 FTE	Average annual growth,* Dec 2011–Dec 2021	% change, Dec 2020–Dec 2021
Professionally qualified clinical staff	**536,350**	**621,962**	**642,560**	**1.8%**	**3.3%**
HCHS doctors	98,416	123,642	127,959	2.7%	3.5%
Nurses and health visitors	276,787	306,430	317,750	1.4%	3.7%
Midwives	20,357	22,530	22,192	0.9%	-1.5%
Ambulance staff	17,736	17,552	18,042	0.2%	2.8%
Scientific, therapeutic and technical staff	123,052	151,809	156,617	2.4%	3.2%
Support to clinical staff	**277,759**	**360,755**	**372,688**	**3.0%**	**3.3%**
Support to doctors, nurses and midwives	215,860	269,908	276,256	2.5%	2.4%
Support to ambulance staff	12,585	24,325	24,540	6.9%	0.9%
Support to scientific, therapeutic and technical staff	49,314	66,521	71,891	3.8%	8.1%
NHS infrastructure support staff	**173,192**	**187,267**	**196,730**	**1.3%**	**5.1%**
Central functions	85,649	95,718	102,040	1.8%	6.6%
Hotel, property and estates	55,498	58,407	59,688	0.7%	2.2%
Senior managers	10,001	11,500	12,291	2.1%	6.9%
Managers	22,044	21,642	22,712	0.3%	4.9%
Other/unknown	**3,292**	**788**	**499**	**-17.2%**	**-36.7%**
Total	**990,593**	**1,170,771**	**1,212,478**	**2.0%**	**3.6%**

Source: NHS Digital. NHS Workforce Statistics – December 2021 (Including selected provisional statistics for January 2022). NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2021). This table covers staff employed in NHS Trusts and Clinical Commissioning Groups (CCGs) but does not include staff providing NHS services through non-NHS or independent providers. It also does not include NHS vacancies. Reported staff numbers for 2020 and 2021 may include temporary changes in staff numbers as part of the response to the COVID-19 pandemic.

*This is the compound annual growth rate (CAGR) for December 2011–December 2021.

2.2.1 NHS HCHS vacancy rates

The vacancy rate – the ratio of FTE vacancies to FTE funded posts – is one key measure of the scale of NHS staff shortages. A vacancy is defined by the NHS as a funded post unfilled by either permanent or fixed-term staff, so the vacancy rate serves as one measure of staff shortages.* Although agency or other temporary staff may fill some vacant posts, these posts will still count as vacancies.† Hiring agency staff tends to be relatively expensive, so higher vacancy rates often imply significant additional cost pressures for NHS trusts.[14],‡

Changes introduced in the collation and interpretation of NHS vacancy rates in 2017 mean it is difficult to compare vacancy data from more recent years to previous years. Since the quarter to June 2017, NHS Digital data show that the overall number of FTE vacancies in the NHS HCHS in England per quarter consistently fluctuated around the 100,000 mark between April–June 2017 and October–December 2019.[15] After the COVID-19 pandemic hit in 2020, vacancy numbers dropped substantially to a low of around 76,000 in the quarter to March 2021. This was, however, largely due to additional funding for surge capacity and by the quarter to December 2021 vacancies had again increased to exceed 110,000.

Of the approximately 100,000 HCHS staff vacancies in the quarter to December 2019, nearly 40,000 were for registered nurses. Unfortunately, similar data on vacancies are not available for general practice. However, the number of fully qualified, permanently employed GPs fell by around 300 from December 2018 to December 2019. In addition, temporary staff (locums) and doctors in training have accounted for a growing share of the GP workforce since December 2017 (see section 2.4). This is reflected in an increasing GP-to-patient ratio – the number of qualified permanent GPs per 100,000 patients in general practice in England fell from around 47 to 44 between December 2017 and December 2021. The British Medical Association (BMA) has documented that the average practice has over

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* NHS Digital define vacancies and vacancy rates as '[…] a post that is unfilled by permanent or fixed-term staff. Some vacant posts may be filled by agency or temporary staff, but these posts are still considered to be vacancies. The number of vacancies is the difference between the number of reported FTE permanent or fixed-term staff in post and planned workforce levels (ie the total funded or budgeted establishment on an FTE basis). The number of vacancies is on an FTE basis. The vacancy rate is a calculation of the FTE number of vacancies as a percentage of planned FTE workforce levels.' (https://digital.nhs.uk/data-and-information/areas-of-interest/workforce/national-workforce-data-set-nwd-guidance-documents/definition-of-vacancies-and-vacancy-rates).

† NHS Digital also clarify that: 'This definition describes what could be considered notional vacancies, ie the gap between establishment and actual staff in post, on an FTE basis. This measure does not directly address questions around hard to fill vacancies, provision shortfalls, recruitment activity or natural churn. However, as a concept it is easy to understand, and can be provided by trusts on a consistent basis that allows appropriate comparisons across the system.' (https://digital.nhs.uk/data-and-information/areas-of-interest/workforce/national-workforce-data-set-nwd-guidance-documents/definition-of-vacancies-and-vacancy-rates).

‡ Although 'agency rules' introduced in 2015 led to a fall in the proportion of trusts' spending on agency staff up to 2019/20, this proportion increased in 2020/21 and 2021/22 due to COVID-19 pressures and could increase further in the next few years given existing staff shortages and the pressures created by the pandemic and the elective care backlog. (DHSC. The Department of Health and Social Care's written evidence to the NHS Pay Review Body (NHSPRB) for the 2022 to 2023 pay round. DHSC; 2022 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057680/Written_evidence_to_the_NHSPRB_2022_to_2023.pdf)).

2,000 additional patients in 2022 relative to 2015.[23] In the absence of data on actual GP vacancy rates, these figures point to GP demand outstripping GP supply in this period.

2.3 The NHS HCHS nursing workforce in England

Data from the NMC show roughly 705,000 nurses in England on the NMC register in March 2022,[24] with around 11,000 additional nurses with an address in England on the NMC's temporary register, set up in 2020 to boost nurse numbers in the fight against COVID-19.[24] Not all of these registered nurses actually work as nurses – some work in other occupations and some are inactive in the labour market[25] – but the register gives a point-in-time snapshot of the pool of potentially employable nurses.

The NHS HCHS is by far the largest employer of registered nurses. In England, the HCHS employs around 312,000 nurses and 6,000 health visitors (as of December 2021). The other three major employer sectors in the nurse labour market are adult social care (around 27,000 in 2020/21), general practice (around 16,500) and the private acute sector (around 12,000).[25] This section focuses on the HCHS nurse workforce, given its relative primacy in numbers and data availability.

As flagged in Chapter 1, the NHS in England has long struggled with nursing shortages and the incoming government in 2019 made a commitment to increase the NHS nursing workforce by 50,000. The government's programme delivery update in March 2022 specified that the 50,000 was an FTE figure (rather than headcount) and covered nurses in general practice as well as the NHS HCHS.[17]

Our research on nursing shortages in the NHS HCHS in England in 2020 highlighted some key limitations of this target:[3]

- It is top down and not differentiated by geographical region, sector within the NHS, or branch of nursing in nurse staffing levels and vacancy rates, so it does not focus attention on where shortages are most pronounced. It also appears to be delinked from any assessment of national or regional demand.[*]

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*   This is supported by research recently undertaken by The King's Fund (Holmes J, Maguire D. *Is the NHS on track to recruit 50,000 more nurses? Hitting the target but missing the point…* The King's Fund; 2022 (www.kingsfund.org.uk/blog/2022/04/nhs-recruit-50000-more-nurses?utm_source=twitter&utm_medium=social&utm_term=thekingsfund).

- It may unduly emphasise 'new' nurse supply over increased support and investment in the existing nurse workforce, and could place emphasis on the relatively 'quick' solution of international recruitment that is primarily focused on acute sector nursing rather than community nursing, which also has high vacancy rates.[*]

We argued for a move from this top-down, target-centred approach towards one prioritising comprehensive longer term workforce planning. That said, the 50,000 nurse target continues to be a key element of the government's strategy to address NHS workforce shortages in the short term, as the Spending Review 2021 reaffirmed.[26]

Together, as discussed in Chapter 1, nurses and health visitors account for just over a quarter (26%) of the HCHS workforce. Table 5 shows that the number of registered nurses and health visitors grew by 3.7% between December 2020 and December 2021, with overall 'Nursing support staff' numbers growing by around 2%. There was little change recorded in the number of nursing assistants/auxiliaries and nursing assistant practitioners. Across all subcategories, growth in nursing staff numbers in the 1-year period between December 2020 and December 2021 was significantly more rapid than the annual growth rates in the decade to December 2021 (1.4% a year on average for nurses and health visitors overall).

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[*]   The government's delivery update in March 2022 affirmed this, specifying that '[…] it is more straightforward to predict international recruitment numbers than it is for other workstreams across the programme.' The update also stated that 'Of [the various channels that can lead to increases in NHS nurse numbers], the route that offers the greatest certainty and flexibility is international recruitment. As part of the programme, DHSC and NHSEI have therefore developed plans to expand international recruitment at short notice, should it be required.' (See DHSC. Policy paper: 50,000 Nurses Programme: delivery update. DHSC; 2022 (www.gov.uk/government/publications/50000-nurses-programme-delivery-update/50000-nurses-programme-delivery-update).)

**Table 5: Change in FTE nursing staff numbers in the NHS HCHS, December 2011–December 2021, England**

Staff group	December 2011 FTE	December 2020 FTE	December 2021 FTE	Average annual growth,* Dec 2011–Dec 2021	% change, Dec 2020–Dec 2021
Nurses and health visitors	**276,787**	**306,430**	**317,750**	**1.4%**	**3.7%**
Nursing support staff	**130,076**	**166,502**	**169,791**	**2.7%**	**2.0%**
Nursing associates	0	2,302	3,797	n/a	64.9%
Trainee nursing associates	0	5,128	5,237	n/a	2.1%
Nursing assistants/auxiliaries	55,945	47,680	47,138	-1.7%	-1.1%
Nursing assistant practitioners	825	6,268	6,339	22.6%	1.1%
Healthcare assistants	43,775	71,140	71,909	5.1%	1.1%
Support workers	25,124	30,140	31,504	2.3%	4.5%
Nursery nurses	4,408	3,843	3,866	-1.3%	0.6%

Source: NHS Digital. NHS Workforce Statistics – December 2021 (Including selected provisional statistics for January 2022). NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2021). This table covers staff employed in NHS Trusts and Clinical Commissioning Groups but does not include staff providing NHS services through non-NHS or independent providers. It also does not include NHS vacancies. Reported staff numbers for 2020 and 2021 may include temporary changes in staff numbers as part of the response to the COVID-19 pandemic.

*This is the compound annual growth rate (CAGR) for December 2011–December 2021.

Figure 3 shows the trends over time for FTE registered nurses, health visitors and midwives and for nursing support staff between December 2011 and December 2021. The number of support staff grew more rapidly in this period (by around 31%) compared with registered staff (14%). This represents a relative reduction over the period in the proportion of the registered workforce, and growth in unregistered staff.[3] Strikingly rapid growth in nursing support staff numbers coincide with 'peak' waves of COVID-19 in April 2020 and January 2021 (Figure 3). The RCN has pointed to indicative evidence of NHS trusts having increasingly recruited other staff into registered nurse posts;[27] this may have driven a surge in support staff recruitment in response to the pressures posed by these waves of COVID-19. However, more data and research are needed to examine this.

Figure 3: Change in FTE nurses, health visitors, midwives and nursing support staff in the NHS HCHS in England (index 100 = December 2011), December 2011–December 2021
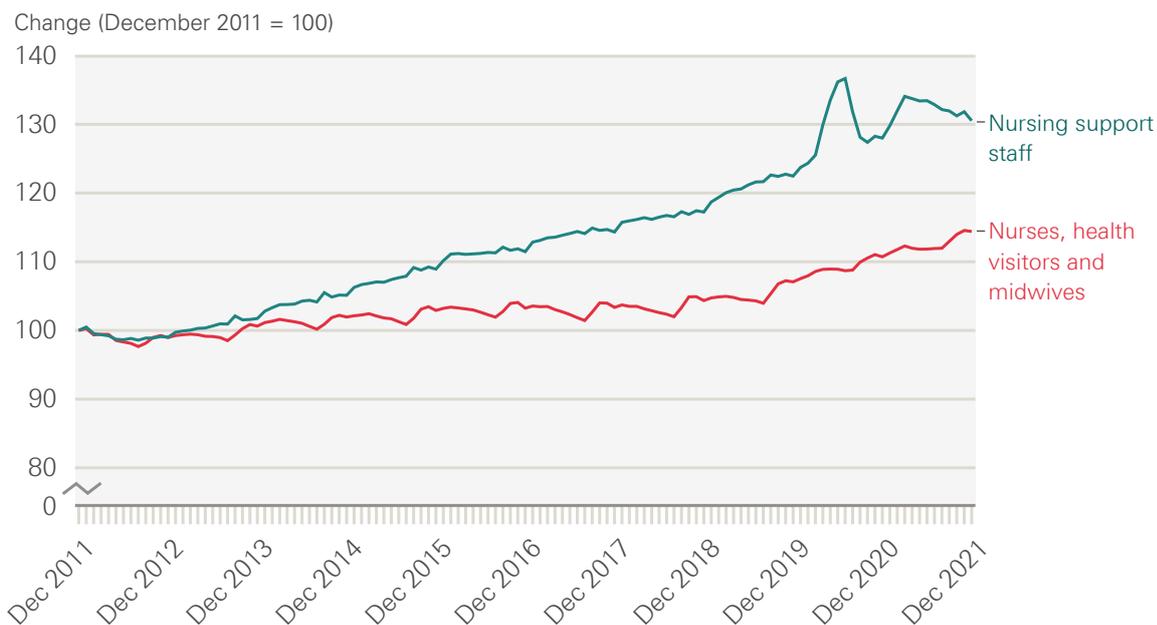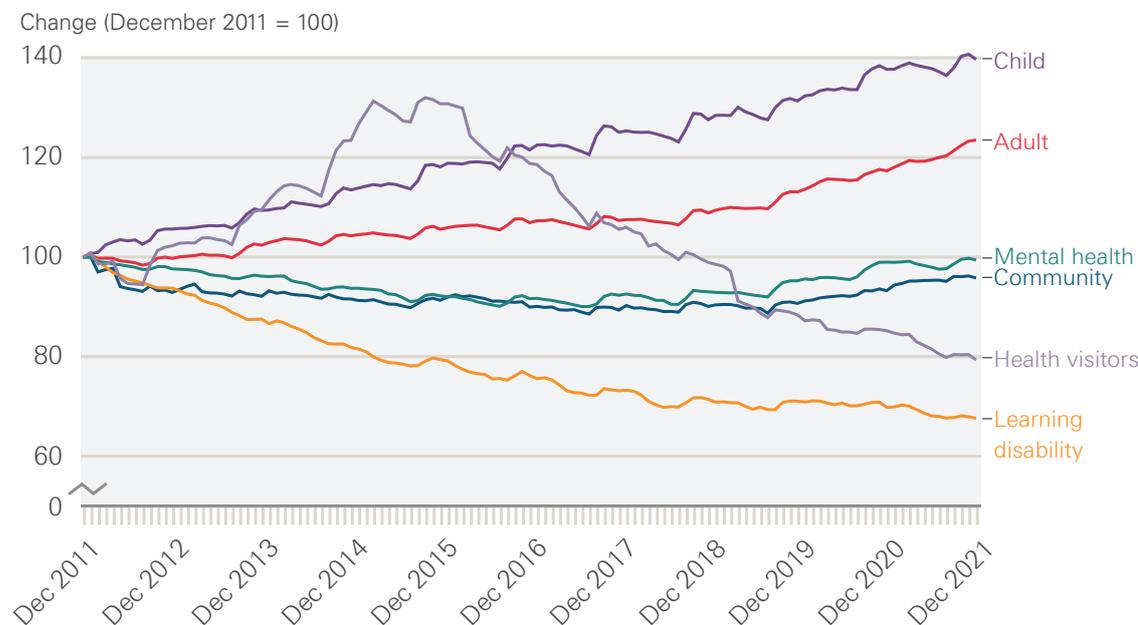

Change (December 2011 = 100)

Source: NHS Digital. NHS Workforce Statistics – December 2021 (Including selected provisional statistics for January 2022). NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2021).

Figure 4 shows trends both in the numbers of NHS registered nurses by branch and in health visitors. Over the 10-year period to December 2021, there has been marked variation in the workforce growth among different work areas. The overall trend is one of relatively steady growth for adult and children's service nurses across the 10-year period. In contrast, there was a decline in community and mental health nurses in the first half of the 10-year period, before a return to marginal growth. Further, learning disability nurse numbers declined steadily over the 10 years to December 2021. In October 2015 health visitor commissioning was moved from the NHS to local authorities. Over the following 6 years, between December 2015 and December 2021, health visitor numbers fell by nearly 40% (Figure 4).[28] The *NHS Long Term Plan* suggested that the government intends to reconsider this arrangement in the medium term.[9]

Looking only at the most recent year (December 2020–December 2021), workforce numbers in adult and in community nursing grew (by 5% and 3% respectively), while numbers of learning disability nurses and health visitors decreased (by 3% and 7% respectively). Importantly, these data are likely to include many of the approximately 11,000 nurses with an address in England who joined the NMC's COVID-19 temporary register, set up in 2020 to enable recently retired nurses to rejoin the service following the pandemic. NMC survey data in August 2021 showed that across the UK, just under half (48%) of 3,690 respondents on the temporary

register reported being 'unlikely' to join the permanent register, although a significant proportion (around 38%) reported that they might 'possibly' join or were 'highly likely' to join the permanent register.[29,*]

Figure 4: Change in the NHS HCHS FTE registered nurse workforce in England by work area (index 100 = December 2011), December 2011–December 2021
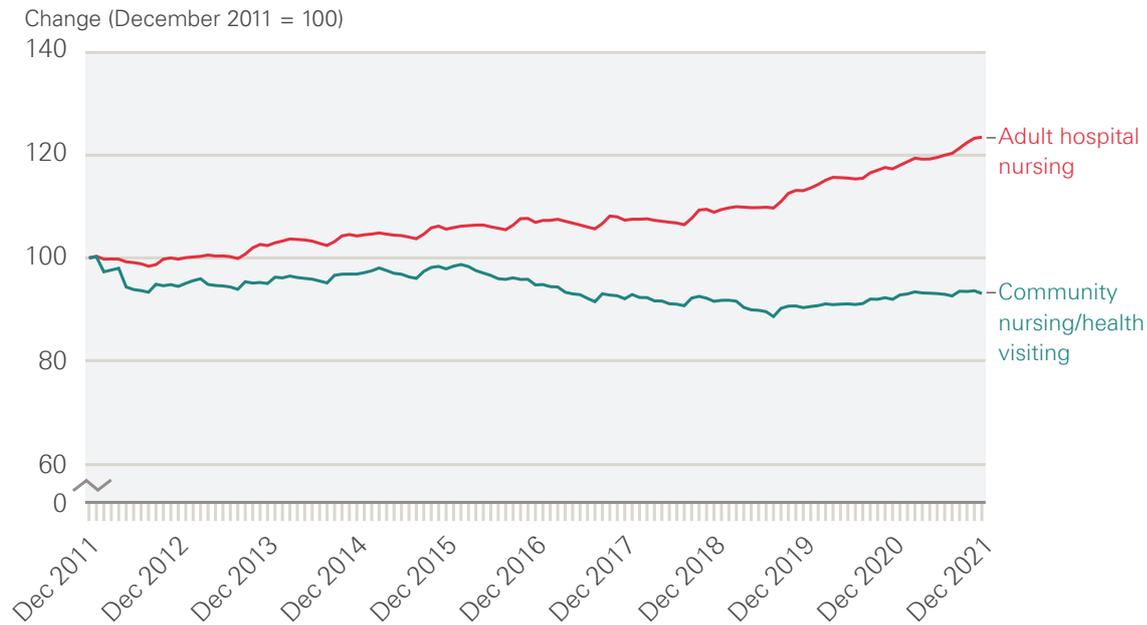

Change (December 2011 = 100)

Source: NHS Digital. NHS Workforce Statistics – December 2021 (Including selected provisional statistics for January 2022). NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2021).

Overall, the decade to December 2021 saw a growing divergence between the number of nurses working in adult care in NHS hospitals, which increased by around 24%, and the number working in community nursing and health visiting, which declined by around 7%. This was incongruous with the long-term policy focus on increasing care delivered in the community.[30]

A more detailed examination of the data reveals that between December 2011 and December 2021, there were marked declines in the numbers of district nurses (-38%), school nurses (-30%) and health visitors (-21%). As we highlighted in 2020,[3] these trends matter all the more given the ageing profile of the nurse workforce as a whole. While there is considerable variation across work areas, the overall proportion of HCHS nurses aged 55 and older (and therefore potentially nearing retirement age) increased from 12% to 17% between 2010 and 2020. There were particularly striking increases in this age group within learning disability nursing, community nursing and mental health nursing.

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* The August 2021 NMC survey data also highlighted that across the UK, over half of the respondents on the temporary register had practised since joining the temporary register, and around 46% were still practising. The NHS Digital data do not identify temporary registered nurses separately to other NHS nurses, so the extent to which unemployed temporary register nurses joined or will join the permanent register in the coming months is likely to have some effect on NHS Digital FTE nurse numbers.

Figure 5: Change in adult hospital nursing and community nursing/health visiting numbers in the NHS HCHS in England (index 100 = December 2011), December 2011–December 2021

Change (December 2011 = 100)

Source: NHS Digital. NHS Workforce Statistics – December 2021 (Including selected provisional statistics for January 2022). NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/december-2021).

## 2.3.1 Nurse and health visitor vacancy rates

As described in section 2.2, the vacancy rate is one measure of NHS staffing shortages. The overall FTE vacancy rate for HCHS registered nurse posts was around 10.3% in October–December 2021, implying around 1 in 10 posts was unfilled.* This is particularly concerning in light of the recent evidence on trusts facing increasing cost pressures from agency staffing since the pandemic hit. Pay rates for agency staff have increased faster than bank staff in nursing and midwifery roles in recent months, indicating demand increases in this labour market are outstripping supply growth.[14]

As we have noted in previous research, vacancy rates across the branches of nursing vary considerably.[3] NHS Digital data show that the share of nursing vacancies in England accounted for by mental health care increased from 21% in July–September 2018 to 29% in October–December 2021. Meanwhile the corresponding proportion for acute care nursing fell from 73% to 64% in the same period.[15] The number of nursing vacancies in mental health care increased by 22% from around 9,000 to over 11,300 in this period. Against a backdrop of the pandemic having driven a significant increase in the demand for mental health care services,[31] this is particularly concerning.

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*   Based on input from NHS Digital, these data cover FTE registered nurse, health visitor and midwife vacancies and the three staff groups cannot be separated out.

Figure 6 shows vacancy rates for nurses and for all HCHS staff by NHS region in the quarter to December 2021. Registered nurse vacancy rates were higher than 'all staff' vacancy rates in all regions, with London and the South East reporting the highest registered nurse vacancy rate (around 13% and 11%).

Figure 6: Overall FTE vacancy rate and registered nurse FTE vacancy rates by region, NHS HCHS, October–December 2021
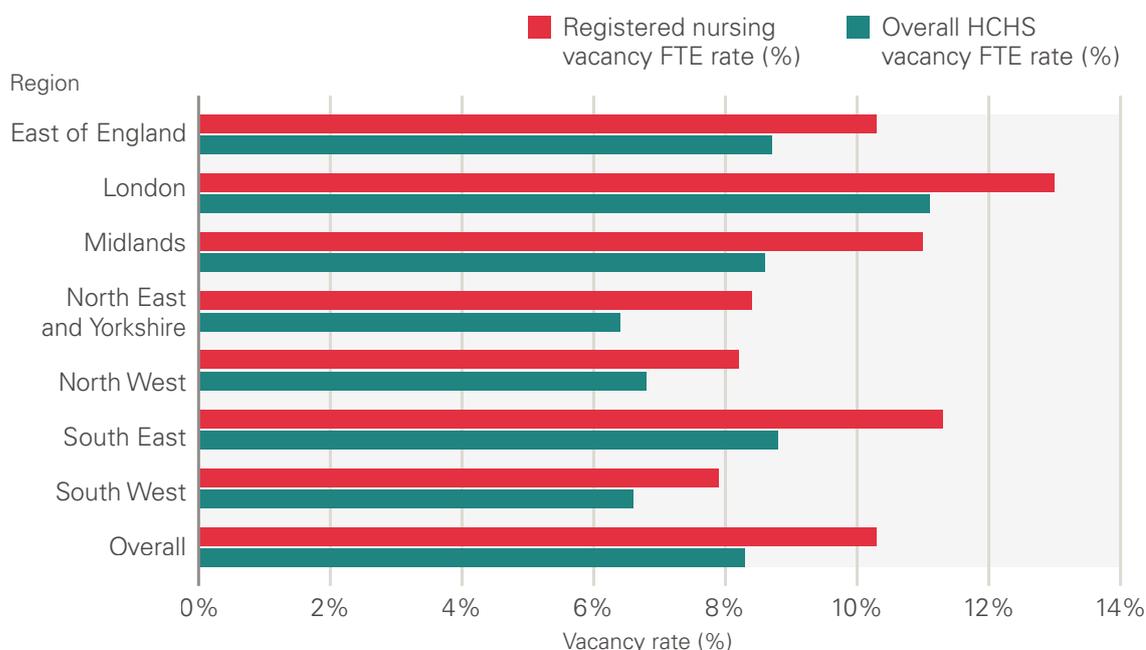
Source: NHS Digital. NHS Vacancy Statistics England April 2015–December 2021. NHS Digital; March 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-vacancies-survey).

2.3.2 Trends in sources of nursing supply

The NHS has several key sources of recruitment to boost nursing availability. Two of the most important are newly qualified nurse graduates from domestic education, and active international recruitment. We explore trends in these two recruitment avenues to better understand the relative significance of each supply route in the short and long term.

Domestic education

In previous analysis, we have estimated that this route accounts for around 60% of the annual new 'supply' of registered nurses in England.[3] In terms of annual numbers of new graduates relative to the population, this appears to be well below key comparator countries in the OECD (Figure A1, Annex A).

We used data from the Universities and Colleges Admissions Service (UCAS) to assess trends in applications/applicants and in 'acceptances' to pre-registration nurse degree courses in the UK. This assists in determining the 'domestic' capacity to educate new student nurses and flows into nurse education.[32] Application and applicant numbers are a sign of overall interest in nursing as a career, while acceptance numbers are a better indicator of the system's ability (funding, university capacity) to train new nurses. Recent analysis by UCAS and HEE highlighted the recent spike in applications, and to a lesser extent acceptances. But it also identified a need to 'ensure there is sufficient education capacity to capitalise on the growth in popularity in nursing', with a recommendation for an increase in the supply of training places (including university and college, nursing associate and apprenticeship opportunities).[33]

Trends in the number of applicants and acceptances are shown in Figure 7 and highlight significant recent growth in applicant numbers. This growth has been attributed in part to the offer of funding support for applicants and to interest stimulated by the very positive image of the nursing profession during the pandemic.[33] However, it is the number of 'acceptances' – the number of individuals placed for entry into pre-registration nurse education – that is the more relevant and significant indicator of system intent and the capacity to educate new nurses. The increase in nursing degree acceptances of 25% in 2020 relative to 2019 was not replicated in 2021; nursing degree acceptances in 2021 increased by just 1% relative to 2020 (Figure 7). For other subjects allied to medicine (such as pharmacy, nutrition and medical technology), the UCAS data point to steadier increases in acceptances in 2020 and 2021 (around 8% and 6% year on year for those living in England).

Figure 7: Applicants and acceptances to nursing degrees in England (2011–12 to 2021–22)

Number of applicants and accepted applicants to nursing degrees
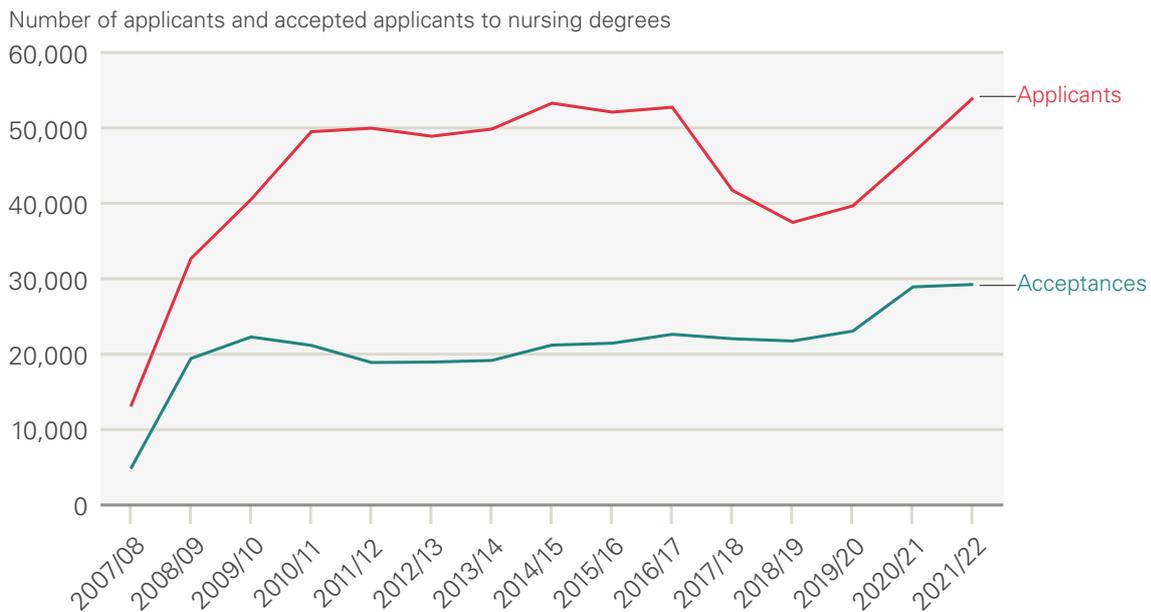
Source: UCAS. UCAS undergraduate sector-level end of cycle data resources 2021. UCAS; 2022 (www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-sector-level-end-cycle-data-resources-2021).

Once student nurses have been accepted on undergraduate courses, some do not complete their course. Despite the importance of this attrition measure, both in overall planning and as an indicator of student experience, there is no official standard published data on attrition by course and by institution. It has been noted repeatedly that this represents a significant workforce planning gap.[3] Data submitted by the Department of Health and Social Care (DHSC) as part of its evidence for the NHS PRB 2022 to 2023 pay round reported a 'continuation rate' of 93% for year one nursing students, using Higher Education Statistics Agency (HESA) data. However, this only captures whether year one nursing students remain in higher education for their second year, and not whether they go on to complete their course or whether they take up work as registered nurses following completion.[34]

Freedom of Information (FOI) survey data analysed by *Nursing Standard* and the Health Foundation,[*] comparing the number of nursing students entering nursing degrees to those that graduate 3 years later, offer some insight into the rates of student nursing attrition within England (Figure 8). This is a relatively simple measure, which allows some trend analysis, but will overstate attrition because some students will delay graduation beyond the normal 3-year period.

Figure 8 shows that the overall nursing student attrition rate in England, using this *Nursing Standard* indicator, spiked significantly in 2020, with the highest annual level recorded in the surveys (around 35%). In the previous 3 years it was around 25%.[35] The higher rate for 2020 is likely to be attributable in part to the disruption of studies for final year nursing students given the emergency pandemic response. When comparing branches of nursing, learning disability nursing courses have had the highest rate of student nursing attrition compared with other branches, with at least 1 in 3 learning disability nursing students leaving or suspending their studies before graduation.

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* These data are compiled from returns to *Nursing Standard* FOI requests made to all institutions that are educating undergraduate student nurses, in the absence of standardised published data.

Figure 8: Estimated proportion of student nurses who do not complete their degree programme within 3 years (by year of expected completion), by branch

Estimated* undergraduate nurse degree attrition rate (%)
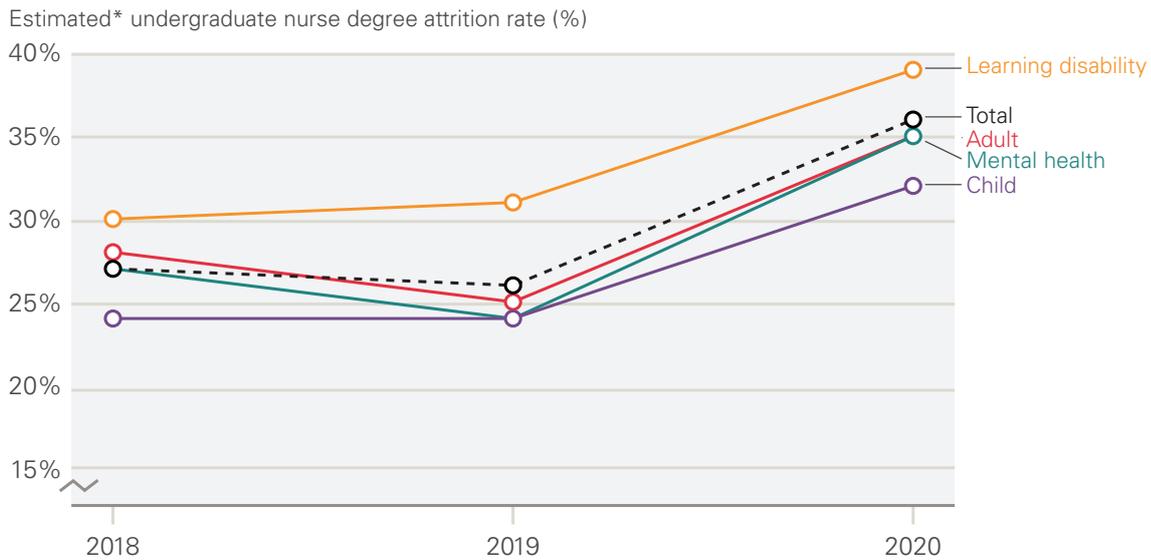
Source: *Nursing Standard* FOI requests 2021.

* These rates are estimates based on data shared by Nursing Standard (obtained through FOI requests).

International recruitment

OECD international comparisons data show that the UK has fewer practising nurses per head of population and a higher proportion of nurses trained in other countries relative to the OECD average. Further, NMC data provide evidence of rapid sustained increases in the number of nurses trained in other countries newly registering with the NMC between 2017/18 and 2021/22, with non-EU/EEA countries accounting for much of the rapid growth in recent years.[36] Further detail underlying these trends is provided in Annex A.

As noted, acceptance numbers to pre-registration nurse education in England have increased in recent years. However, the minimum 3-year time lag before new acceptances are fully trained to become 'new nurses' means that those who enter pre-registration nurse education from September 2021 onwards will not contribute to the 50,000 nurses target. It is therefore no surprise there has been a very rapid increase in national policy led international recruitment of nurses to the NHS in England in the past 2 years.[37] This has the attraction to policymakers of being a 'quick fix'. International recruitment can be accelerated in months rather than years through fast-track policy support, whereas it takes at least 3 years before new entrants to domestic nurse education are fully trained to be registered nurses.

Regulatory and migration policy related barriers to international recruitment are being eased and the capacity to support the induction of overseas nurse recruits is being increased.[38] Concerns around ethical international nurse recruitment notwithstanding, it has been stressed by NHS England that 'international recruitment will be a vital component of support for ongoing management of COVID-19 in areas across England, for other service pressures, and for recovery

for the NHS from the pandemic.'[39] Further, the government's delivery update for the 50,000 nurse target in March 2022 emphasises international recruitment as being 'the route that offers the greatest certainty and flexibility' in terms of meeting the target.[17]

2.3.3 Emerging evidence of COVID-19's impact on the nurse workforce

The impact of the pandemic on the nurse workforce is still unfolding, but emerging evidence of workload pressures and burnout points to substantial retention risks. In the medium term, there is also uncertainty around the effects on student nurse registration and recruitment.

Retention

COVID-19 has presented two major retention risks to the nursing workforce. First, the higher occupational hazard of contracting COVID-19 or subsequently suffering 'long COVID'.[40] Second, the indirect effect of burnout caused by changes in the hours and intensity of work.

- **Occupational hazard and 'long COVID'**: In the early stages of the pandemic, NHS staff risked greater exposure to COVID-19 infection at NHS workplaces due to insufficient PPE and training, as well as regular patient interaction.[41] Although measures have since been introduced to mitigate this, patient-facing health care workers continue to be exposed to infection in the workplace, with data on the recent Omicron surge doubling COVID-19 related sickness absence among NHS staff to almost 40,000 by the end of December 2021.[42] As of September 2021, the ONS estimated over 40,000 health care workers in the UK to have long COVID, expected to increase absenteeism and exacerbate staff shortages and workload pressures.[43]

- **Burnout as a result of chronic workplace stress**: Over the past 2 years, NHS workers have had to contend with multiple stressors, including managing patients unwell with or dying from COVID-19, longer working hours, increased work pressure and mortality risks for colleagues, redeployment, and changes to ways of working. Around three in five nurses surveyed by the RCN[44] in 2020 reported having felt more exhausted and pressured at work due to the pandemic response. When asked about intentions to leave in spring 2020, almost 6 in 10 RCN respondents working in NHS hospital settings were considering or planning to leave their current job.[44]

More recently, an RCN survey of nursing and midwifery staff presented concerning evidence pointing to how staffing shortages can impact care delivery. Across all NHS care settings, 84% of respondents reported that staffing levels were insufficient for safe and effective care provision, relative to 69% of independent sector respondents.[45] While a willingness to help with the pandemic response

may have led some NHS staff to postpone their retirement, the risk of burnout may expedite the retirement decisions of others, resulting in earlier-than-planned departures of experienced staff. The latest NMC register report underlines this risk, highlighting that the number of nurses who left the permanent register in 2021/22 was nearly 3,000 higher than in 2020/21, the first increase in recent years.[46]

Recruitment

The enhanced profile of nursing at the start of the pandemic may have contributed to the record rise in applications to nursing courses in 2020. The recent UCAS/HEE report (discussed in section 2.3.2) suggests that the pandemic played a key role in student nurse respondents' applications, inspiring more than two-thirds of those surveyed to apply.[33]

Further, changes to public A-level examinations during the pandemic through the award of centre assessment grades suggest evidence of grade inflation, with almost 5% more applicants awarded a university place in 2020 than 2019.[47] This may have contributed to the 25% increase in accepted applicants to nursing degree courses in 2020 relative to the previous year,[32] and the subsequent expansion of nurse training places given the obligation of universities to honour offers.[48] It remains to be seen how graduation rates will compare for the cohorts who began nursing courses during the pandemic.

The rollout of the 'We are the NHS' recruitment campaign and increased media visibility have been identified as key reasons for the growth in joiners to the health service. In April 2021, the NHS reported that half of the 10,000 health care support workers joining the NHS in the first 3 months of 2021 did not have a background in health and social care.[49] COVID-19 led to considerable uncertainty in the wider economy, possibly leading many to perceive a career in the NHS as relatively more stable and conducive to professional development.[50]

2.3.4 Illustrating the impact of COVID-19 on the nursing workforce

It is therefore relatively straightforward to identify the different areas of the pandemic's potential impact on the workforce, based on current evidence. It is more difficult to describe the dynamics between different areas of impact and how they might affect the workforce in the future. We use our nurse supply model to illustrate the potential impact of temporary and long-lasting shocks to retention and recruitment. We consider potential impacts on both recruitment (in this section) and retention (Annex B).

The following examples are **illustrative only** and are not numerical projections of future workforce supply and demand. There remains a degree of uncertainty around how long-lasting the impacts of the pandemic will be on the different drivers

of nurse supply. We do not attempt to cover all eventualities. However, at least qualitatively, the illustrative examples we give provide a reasonably comprehensive overview of possible impacts.

Possible effects of COVID-19 on student nurse attrition

The number of nursing undergraduates who do not register as nurses affects not just the number of new nurses that come into the NHS each year, but also total nurse numbers in future years. This is because when a nursing student drops out, the NHS loses not only a new entrant, but someone who may have worked for the NHS in the years after they graduated.

More student nurses left their nursing course prior to completion in 2020 than previous years, likely in part due to the emergency recruitment measures to support the pandemic response. It is not yet clear how many of these students have completed or are completing their degree courses (see the discussion of the data gap in attrition rates in 2.3.2). However, if many do not go on to qualify, or the pressures faced by the NHS contribute to increased attrition over the next few years, this could have lasting consequences – not just for the number of newly qualified registered nurses, but the total stock of nurses.

We attempt to illustrate the potential impact of increases in student nurse attrition rates by comparing the number of nursing graduates to the number of acceptances to nursing courses 3 years prior.

To do so we model three scenarios:

1. **Delayed graduation**: Some student nurses due to graduate in 2020 voluntarily suspend their studies to move to front-line working following the pandemic emergency response. As a result, the rate at which nursing students did not complete their courses in 2020 is 10 percentage points higher than in previous years. We assume that all of those who were unable to graduate in 2020 choose to delay graduation until the next year. This leads to a corresponding increase in graduate numbers in 2021, and the overall size of the nurse workforce stock is unchanged.

2. **Temporary shock**: Not all of student nurses who were unable to graduate in 2020 return to complete their course and graduate in 2021. Specifically, the attrition rate increases by 10 percentage points in 2020 but falls back by 10 percentage points in 2021 and is unchanged thereafter. This means the number of newly qualified nurses falls considerably up to 2023 (Figure 9 provides an illustration) but thereafter returns to the historical trend. The overall nurse workforce stock falls somewhat due to the increase in attrition in 2020 but this effect is relatively small.

3. **Lasting impact:** The pandemic has a lasting impact on the number of nursing graduates, with a permanent increase in the rate of attrition from nursing courses for all nursing cohorts from 2020 onwards. This is modelled to permanently reduce the overall nurse workforce stock to a greater extent than a temporary shock.

The COVID-19 shock takes place in 2020 but resulting changes in potential nurse supply take 3 years to materialise in the nurse supply model, due to the time taken for nursing students to complete their courses.[*]

Figure 9: Illustration of the potential impacts of COVID-19 on student nurse attrition
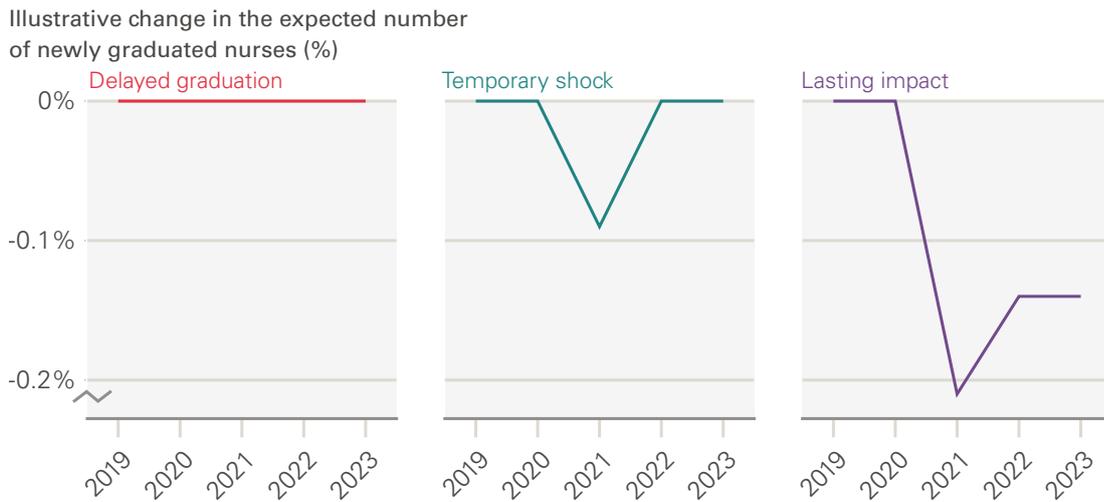
Illustrative change in the expected number
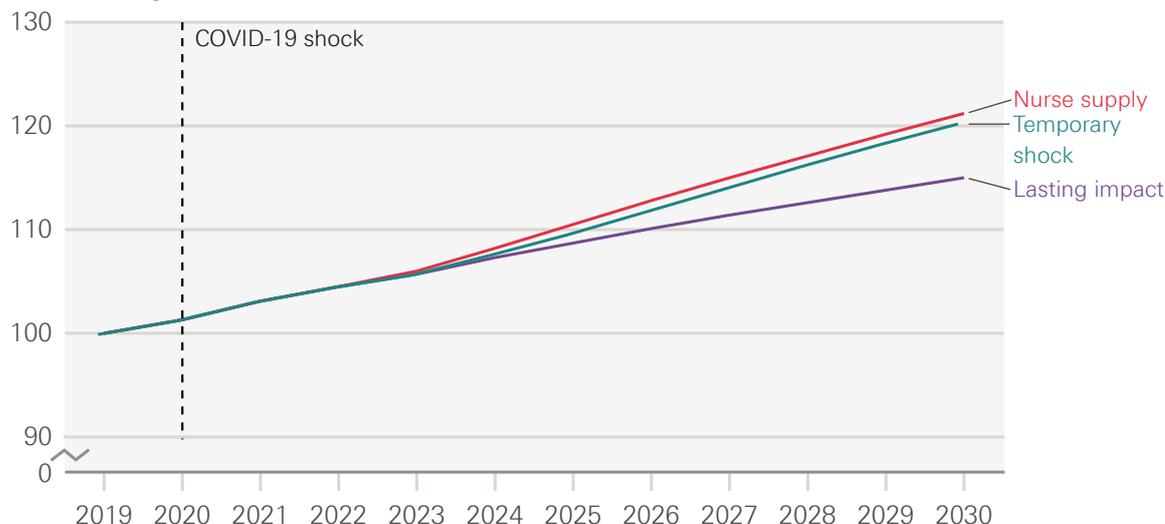of newly graduated nurses (%)

Source: REAL Centre nurse supply model (illustrative figures only, based on a range of data sources).

Figure 10 shows us the impact of different student nurse attrition rates on the number of NHS nurses when modelled through the nurse supply model. It illustrates that even a temporary shock to student nurse attrition could lead to a permanent reduction in the total number of nurses, as when a student nurse drops out, the NHS loses their labour supply for more than just the year after they graduated. However, the reduction in nurse numbers from a temporary shock, as expected, is much smaller than for the lasting impact scenario.

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[*]   A full description of the nurse supply model and its underlying assumptions is provided in Derbyshire K, Cave S, Woodham E, Wildblood R, Shembavnekar N. *Nurse supply model: a review of economic factors affecting nurse supply.* The Health Foundation; 2021 (www.health.org.uk/publications/reports/nurse-supply-model-a-review-of-economic-factors-affecting-nurse-supply).

Figure 10: Illustration of the impact of COVID-19 on student nurse attrition and the overall size of the NHS nurse workforce

Potential change in the number of FTE nurses (illustrative, 2019 = 100)

Source: REAL Centre nurse supply model (illustrative figures only, based on a range of data sources).

The future pattern of student nurse attrition also remains highly uncertain. The future path of the pandemic will affect how much current training is disrupted. The experiences of student nurses who undertook front-line responsibilities during the pandemic are likely to influence decisions to register with the NMC and join the registered nurse workforce following programme completion.

For retention, our illustrations in Annex B underline that it will be important to consider both the number of staff who leave the NHS and which staff leave. In particular, nurses who are closer to retirement age are typically the most experienced and better able to help new nurses develop their skills, while younger nurses represent greater potential in terms of the number of work years they can offer. This is an uncertain landscape for policymakers, but one where robust workforce planning, underpinned by scenarios, is more important than ever.

While these illustrations are based on the nurse supply model, the insights that they offer are relevant to the broader health care workforce, particularly for clinical staff in primary and secondary care.

2.4 The general practice workforce in England

The general practice workforce in England accounts for around 149,000 FTE staff (as of December 2021). This covers both traditional general practice staff and new staff employed as part of the primary care networks (PCNs). GPs account for around a quarter (24%) of the general practice workforce, with nurses accounting for a further 11%. Other DPC staff across a wide range of roles account for another 16% of the workforce, with administrative or non-clinical staff accounting for the remainder (nearly half, or 49%, of the overall general practice workforce in December 2021). These groups are described further in Box 1.

2019 heralded a major shift in general practice policy and planning, with the 5-year framework for GP contract reform introducing PCNs and developing a more multidisciplinary approach to primary care delivery. PCNs are groupings of local general practices, usually neighbouring each other, and collectively cover around 30,000–50,000 patients.[51] PCNs provide a mechanism for practices to share staff and collaborate while maintaining the independence of individual practices. Joining a PCN is voluntary for practices but as of the 2021/22 period, the overwhelming majority of practices took part in a PCN.[52] These networks are receiving dedicated funding through the Additional Roles Reimbursement Scheme (ARRS)[8] to cover the cost of employing 26,000 additional FTE DPC professionals in defined roles by the end of 2023/24 (relative to the end of 2018/19).[53] Networks are expected to deliver a range of 'service specifications' aimed at improving aspects of community care (eg delivering better care to nursing home residents, or better end-of-life care).

Under the ARRS, PCNs can claim full (100%) reimbursement of FTE salary and employer on-costs (pension and National Insurance) as well as specific other costs for the roles covered.[54] The 2019 Conservative manifesto also set out a target of recruiting 6,000 additional GPs by 2023/24 relative to 2018/19.[16] But in November 2021 the health secretary stated that this target, the multiple shortcomings of which are discussed in Chapter 6, was unlikely to be met.[55]

NHS Digital provides monthly data on the general practice workforce.[56] Between September 2015 and September 2016, data submission rates from practices were appreciably lower than for subsequent reporting periods. This contributed to NHS Digital undertaking a methodological review that led to an updated time series going back to September 2015.[56] For December 2016 and June 2017, data are only available for GPs and not for the other three staff groups (nurses, other DPC staff and administrative or non-clinical staff). So, in this chapter we use data for December in each year from 2017 to 2021 (the latest available data at the time of writing are for December 2021). Separately, NHS Digital publish quarterly data on staff employed by PCNs.[57] In May 2022, NHS Digital also released the first

in a series of planned quarterly updates on the combined general practice and PCN workforce, which will be useful in obtaining a more complete picture of this workforce in the coming months.[58,*]

NHS Digital data suggest that the overall number of FTE GPs in England increased by 6% between December 2017 (34,300) and December 2021 (36,300).[56] However, this masks significant underlying variation across GP subcategories and geographies.[59] In particular, the number of qualified permanent GPs (all GPs other than GPs in training and locum GPs), the variable that we focus on in our projections analysis, fell in this period. Although the overall number of GPs has increased in the past 4 years, driven by increases in the numbers of GPs in training, GPs accounted for a smaller share of the general practice workforce in December 2021 (24%) relative to December 2017 (27%, Figure 11), pointing to more rapid growth in other parts of the workforce.

The roughly 16,500 nurses in general practice in England in December 2021 represented a 3% increase over the corresponding figure in December 2017 (16,000). Since December 2019 there have been concerning signs of a slow decline, with nurse numbers having fallen by 1% between December 2019 and December 2021. But it is too early to tell whether this will continue and to what extent, if any, the trend can be attributed to the pandemic. A majority of nurses working in general practice are practice nurses, with the remainder comprising mainly advanced nurse practitioners, nurse specialists and extended role practice nurses. As with GPs, the share of the general practice workforce accounted for by nurses has declined over time, from 13% in December 2017 to 11% in December 2021 (Figure 11).

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*   Input obtained from NHS Digital suggests that the FTE data in the general practice workforce series and the PCN workforce series can be aggregated, but aggregating headcount estimates across the two series could entail significant double-counting issues. These issues arise in cases where the same staff are employed by practices and PCNs but recorded separately in the general practice workforce and PCN workforce headcount datasets. FTE data are less vulnerable to this shortcoming, although they may also involve a small degree of overlap. In December 2021, 18% of PCNs did not submit data on FTE staffing. We restrict our attention to FTE data from the remaining 82% of PCNs that did provide data and the general practice workforce data series to minimise the risks of double-counting. The updated data suggest that the FTE total general practice workforce across practices and PCNs in England grew by around 18% in the 4 years to December 2021 (from around 126,000 to around 149,000).

Box 1: Key general practice staff groups

GPs account for approximately a quarter (24%) of the general practice workforce (around 36,300 FTE in December 2021). The Royal College of General Practitioners, the BMA and the General Medical Council (GMC) recognise GPs as expert medical generalists.[*] GPs play a vital role[†] in the community by treating common medical conditions, performing assessment and referral, looking after people with chronic illness, and promoting physical and psychological wellbeing more generally through holistic care provision, preventative medicine and health promotion.

Nurses play a key role in general practice care delivery. There were around 16,500 FTE nurses in general practice in England in December 2021 (11% of the general practice workforce, Figure 11). They can be involved in most aspects of patient care. A few examples[‡] are 'wound dressings, contraceptive injections and checks, child immunisations and some chronic disease management'. More experienced practice nurses[§] can move on to become advanced nurse practitioners, nurse specialists or extended role practice nurses. These roles offer greater autonomy and sometimes involve elements of management, teaching and clinical research.

Direct patient care (DPC) staff other than GPs and nurses[¶] also play an increasingly vital role in general practice care provision. This group covers a range of registered and unregistered roles. Across practices and PCNs, DPC staff accounted for around 23,800 FTE in December 2021 – around 16% of the FTE general practice workforce (Figure 11 and Table 6):

- This includes staff employed in specific roles in PCNs supported by ARRS funding, which initially prioritised[**] the hiring of additional DPC staff across **five roles** to support GPs – clinical pharmacists, first contact physiotherapists, paramedics, social prescribing link workers and physician associates. While these roles existed in general practice prior to 2019, the ARRS provided an incentive for accelerated recruitment to these roles.

- Over 2020/21 and 2021/22, **other roles** were brought under the remit of the ARRS and the government's target of hiring 26,000 additional FTE staff in general practice by 2023/24 now also covers these other roles[††] (pharmacy technicians, dieticians, podiatrists, occupational therapists, nursing associates, trainee nursing associates, care coordinators and health and wellbeing coaches).

- Further, the DPC staff group includes some roles that are **not covered by ARRS funding**, principally because they have historically been well embedded in general practice. This category, which includes mainly healthcare assistants, phlebotomists and dispensers, accounted for around 10,300 FTE staff in December 2021.

Administrative or non-clinical staff are the biggest single staff group in general practice, with around 72,500 FTE administrative staff accounting for nearly half (49%) of the general practice workforce in England in December 2021 (Figure 11). This staff group covers a range of roles, including receptionists, practice managers, medical secretaries, telephonists and estates and ancillary staff.

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[*]   www.rcgp.org.uk/policy/rcgp-policy-areas/gps-as-specialists.aspx

[†]   www.healthcareers.nhs.uk/explore-roles/doctors/roles-doctors/general-practitioner-gp/general-practitioner

[‡]   www.healthcareers.nhs.uk/explore-roles/nursing/roles-nursing/general-practice-nurse

[§]   www.healthcareers.nhs.uk/explore-roles/nursing/roles-nursing/general-practice-nurse
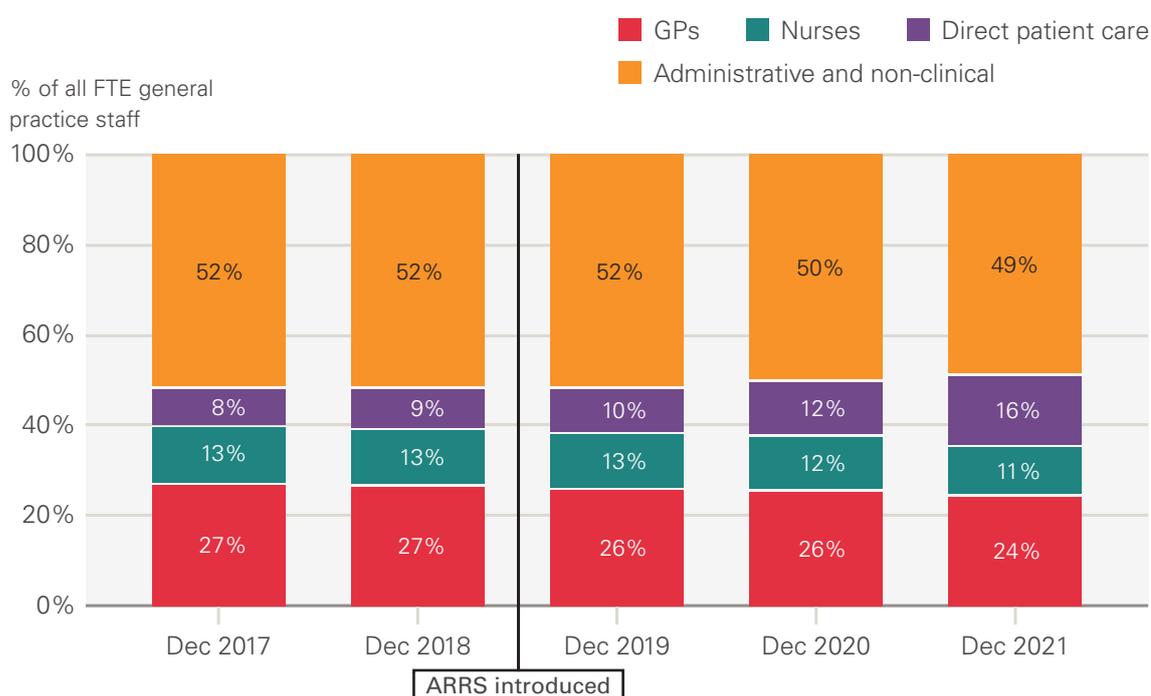
[¶]   In this report, when we refer to 'DPC staff' we imply DPC staff other than GPs and nurses in general practice.

[**] www.england.nhs.uk/publication/network-contract-directed-enhanced-service-additional-roles-reimbursement-scheme-guidance/

[††] www.england.nhs.uk/gp/expanding-our-workforce

The rapid increase in DPC staff numbers driven by ARRS funding is visible in the data. FTE DPC staff numbers grew by around 21% in the 2 years to December 2019, but nearly doubled between December 2019 and December 2021 (from 12,700 to 23,800). DPC staff accounted for 16% of all general practice staff in December 2021 (relative to 8% in December 2017, Figure 11). Administrative staff accounted for around 52% of the general practice workforce between December 2017 and June 2020, with the proportion having declined slowly to 49% in December 2021 (although the number of administrative staff grew by 11% between December 2017 and December 2021). Whether this trend persists remains to be seen.

Figure 11: Composition of the FTE general practice workforce in England, December 2017–December 2021

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).

2.4.1 The diversity of staff roles

GPs

The total of around 36,300 FTE GPs (December 2021) encompasses five subgroups:

- **GP partners** own a stake in a general practice. Through the practice, GP partners are contracted by the NHS to provide primary care services in an area.[60] Some practices have only one partner, but most have two or more. These GPs work together as business partners and pool resources such as buildings and staff. Together they are jointly responsible for meeting the requirements set out in their practice contract and they share the income it provides.

- **Salaried GPs** are fully qualified GPs employed by a practice on a salaried basis without owning any part of the practice.[60]

- **GPs in training grade** (formerly called GP registrars) are GPs undergoing GP training that counts towards full qualification as a GP.[61]

- **GP retainers** are GPs employed through the GP retention scheme.[62]

- **Locum GPs** are fully qualified GPs who temporarily substitute for other GPs[63] – they tend to be self-employed and are sometimes also referred to as sessional GPs.

The modest increase in overall GP numbers since December 2017 masks underlying variation across different GP types. In December 2021, GP partners accounted for just under half (47%) of all GPs in England, down from 58% in December 2017 (Figure 12). On the other hand, the proportion of salaried GPs (among all GPs) increased from 23% to 27% in the same period. The proportion of GPs in training also increased substantially in this period (from 16% to 23%).

Figure 12: FTE GPs in England by GP category, December 2017–December 2021

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).
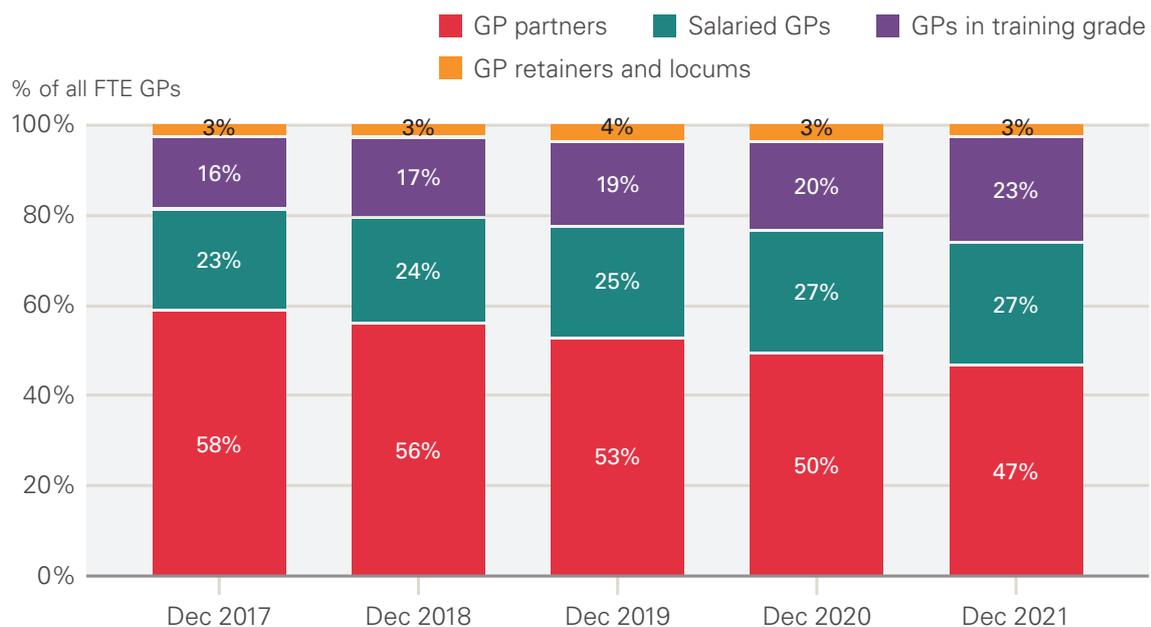
The changes reflected in Figure 12 also show in absolute terms, with the number of GP partners having fallen by 15% to just under 17,000 between December 2017 and December 2021, and the numbers of salaried GPs and GPs in training having increased by 27% and 56% over the same period. Overall, this has led to the number of **qualified permanent GPs (all GPs excluding GPs in training and locum GPs)** declining from around 27,900 to 27,000 over this period. This is the variable that we focus on in our projections of future GP supply in Chapter 5.

On average, GP partners are older than salaried GPs. However, GP partners have accounted for a declining share of all qualified permanent GPs (the total of GP partners, salaried GPs and locum GPs) across all age bands since December 2017, particularly those aged 54 and younger (Figure 13). Conversely, over the same period, salaried GPs have accounted for a higher share of qualified permanent GPs in this age bracket. This may be attributable to the increased responsibility associated with GP partner roles and perceptions of greater flexibility and career control in salaried GP roles,[*] but further research is required.

Figure 13: FTE GP partners and FTE salaried GPs by age group (up to 55, and 55 and over) as a proportion of qualified permanent FTE GPs*, December 2017–December 2021
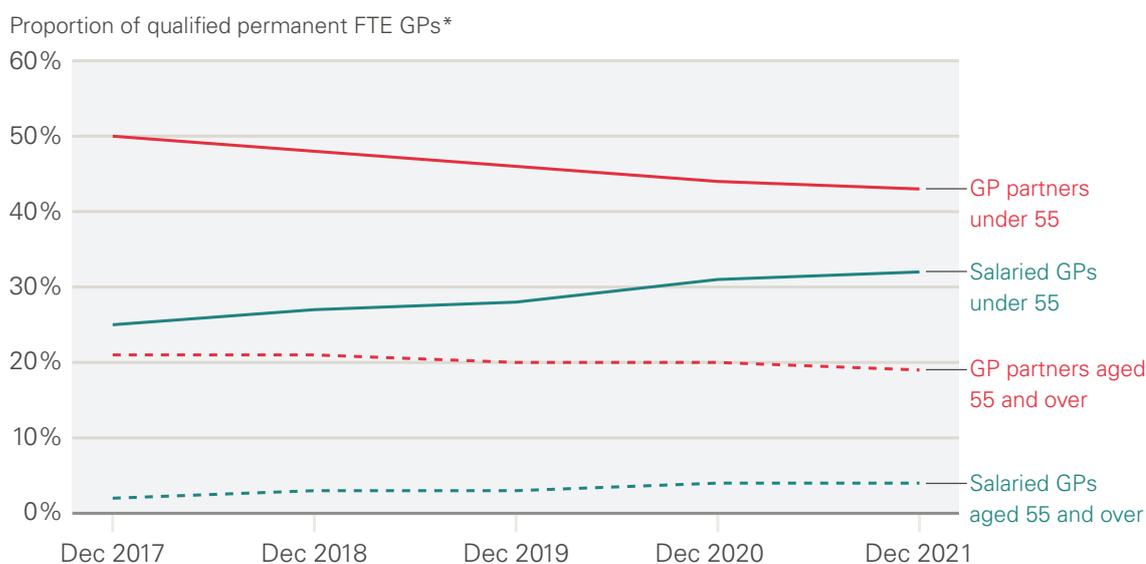

Proportion of qualified permanent FTE GPs*

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).

*Note: Qualified permanent FTE GPs include GP partners, salaried GPs and GP retainers, but FTE GP retainers account for less than 1% of qualified permanent FTE GPs (as at December 2021).

A slight majority (53%) of all FTE GPs in December 2021 were women (Figure 14), relative to a near 50/50 sex split in December 2017.[†] Nearly 3 in 5 (58%) GP partners in December 2021 were men, whereas less than a third (31%) of salaried GPs were.

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*   Oxtoby K. GP partnerships versus salaried roles: what to consider when choosing a career path. BMJ 2019; 366:l5001 (https://doi.org/10.1136/bmj.l5001).

†   Data on sex were unavailable for 2% of FTE GPs in December 2017 and 1% of FTE GPs in December 2021.

Figure 14: FTE GPs by sex and category, December 2021

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).
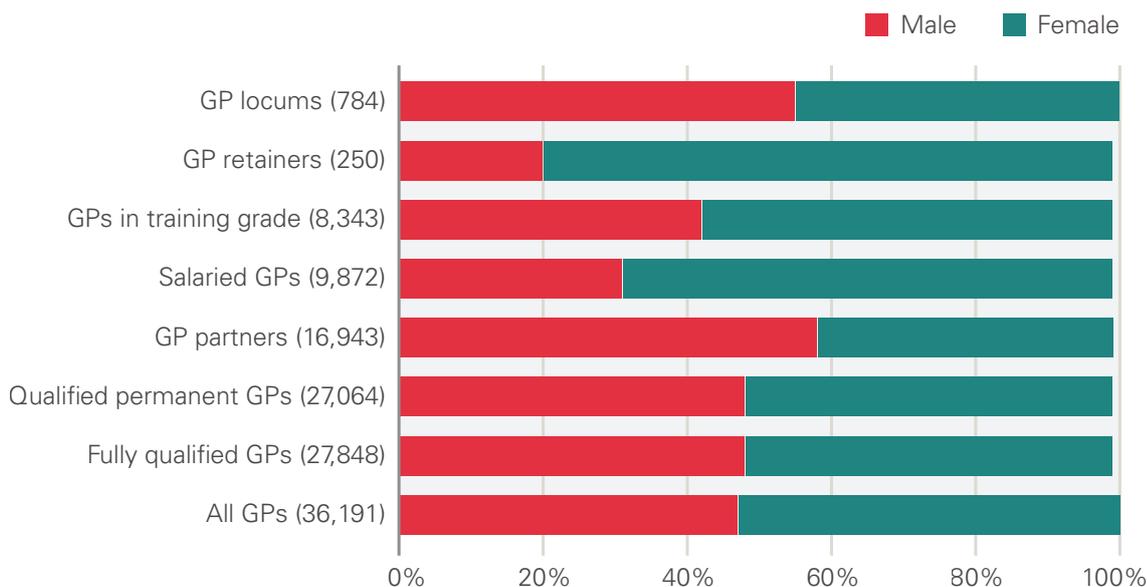
*Note: As the sex was not recorded for all GPs, percentages may not add up to 100%. The numbers in brackets refer to the relevant FTE data for December 2021.
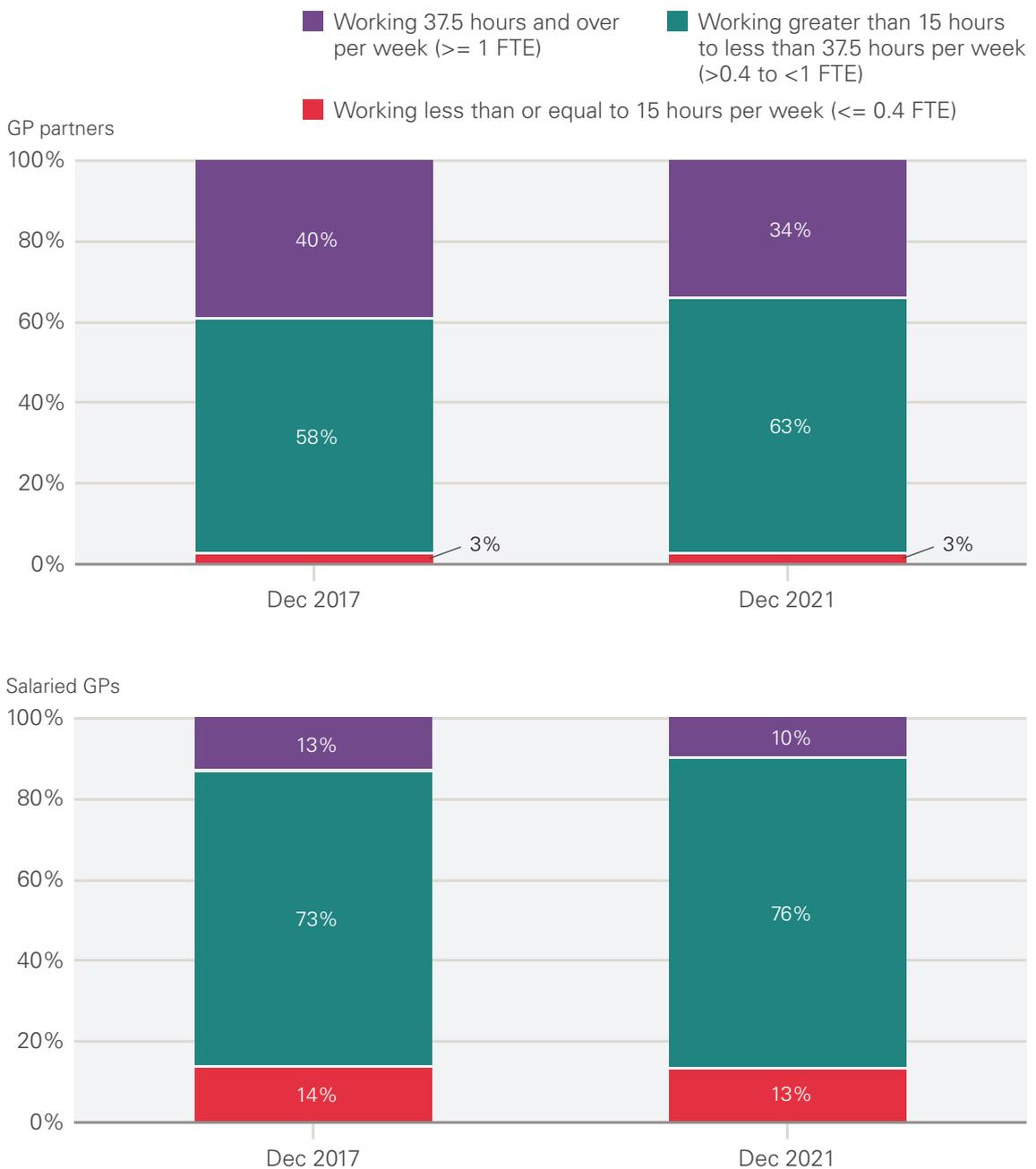
Further, there is considerable variation in working hours across GP subgroups. It should be noted that the concepts of 'full time' and 'part time' in general practice are complex and do not reflect the norms of other sectors. Within general practice, hours worked by GPs are organised into 'sessions'. The definition of a session varies but is approximately half a working day – the BMA's model contract for salaried GPs uses 4 hours and 10 minutes.[64] 8[65] or 9 sessions, or around 4 full working days, is generally considered 'full time'. The hours worked within these 8 or 9 sessions, alongside administrative and other practice work, point to GPs meeting and often exceeding the 37.5 hours considered 'full time' under Agenda for Change. It has been noted that GPs working fewer than 8 or 9 sessions per week (ie 'part time' by general practice standards) often still work more than the 37.5 hours needed to be considered 'full time' in other parts of the NHS and beyond.[66,67,68] GPs may also be working 'full time' for the NHS but only 'part time' in general practice, also spending time working in leadership, commissioning, or clinical services elsewhere.

For consistency with other parts of the NHS and ease of understanding, our analysis considers GPs working at least 37.5 hours per week in general practice to be full time, and less than this to be part time.

Overall, in December 2021, around a quarter (24%) of qualified permanent GPs worked full time in general practice (37.5 hours and over per week), with the rest working part time (the majority of these – 68% of the total – working between 15 and 37.5 hours a week). Male GPs were considerably more likely to work full time (38%) relative to female GPs (13%). This difference is attributable to GP partners – nearly half of male GP partners (47%) worked full time in December 2021, whereas only a fifth (20%) of female GP partners did.

GP partners are significantly more likely to work full time relative to salaried GPs – December 2021 data show 90% of salaried GPs working part time, relative to 66% of GP partners. Interestingly, for both GP partners and salaried GPs, the proportion of FTE staff working on a full-time basis has fallen since December 2017 (Figure 15). This points to a growing part-time working trend across the GP workforce in recent years. While this applies to both male and female GP partners and salaried GPs, it is particularly striking in the case of male salaried GPs – the proportion of male salaried GPs working part time increased from 63% to 70% between December 2017 and December 2021.

Figure 15: Proportion of full-time and part-time GP partners and salaried GPs, December 2017 and December 2021, percentages of headcount
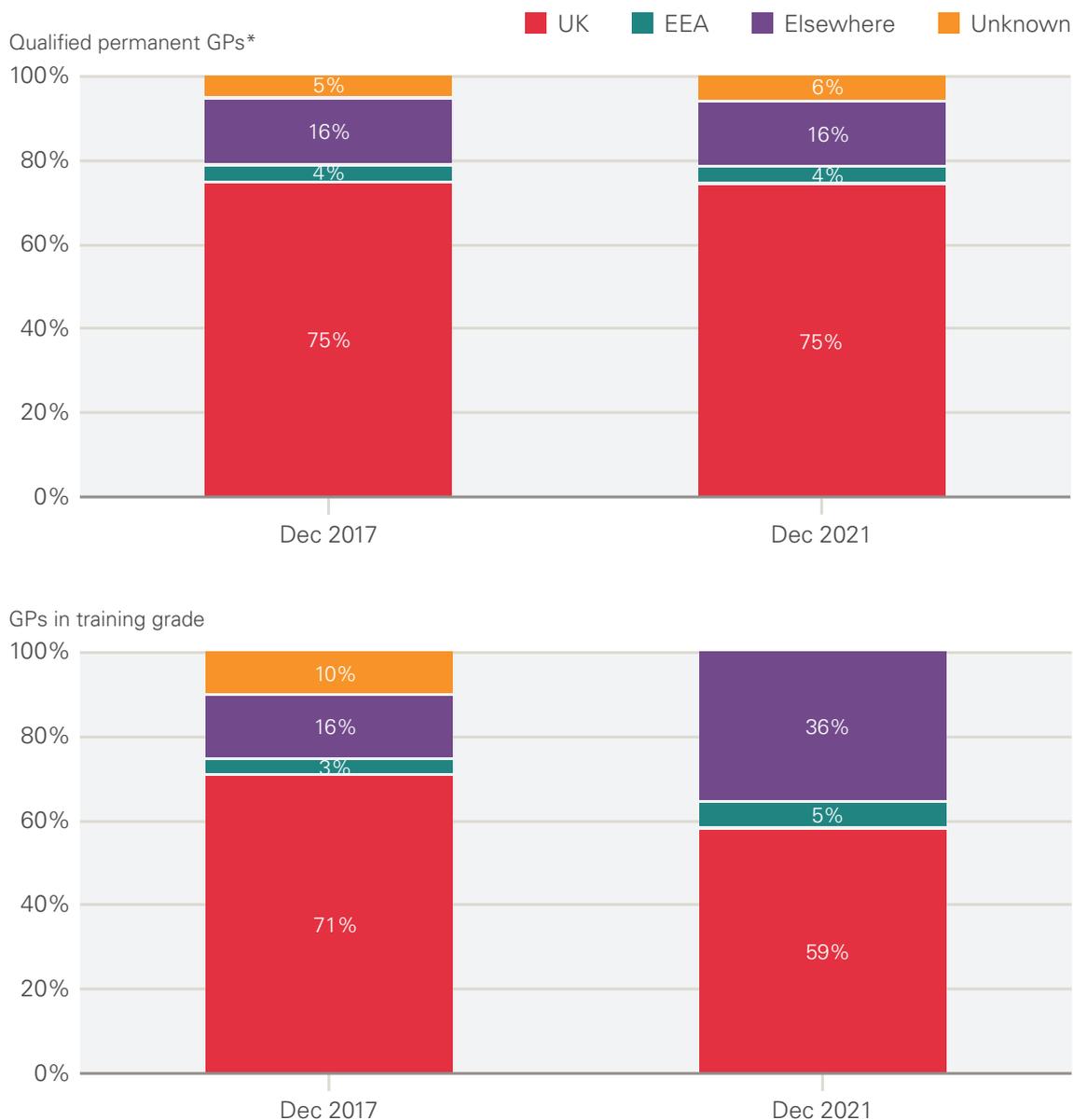

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).

After accounting for differences in population levels, GPs are unequally distributed across regions and local areas in England. This matters because on the whole, the supply of GPs and the demand for GP activity tend not to be aligned with each other. An inverse association between overall levels of the need for, and supply of, primary care across geographies was captured by Julian Tudor Hart over 50 years ago in his well-known article on the 'inverse care law'.[69] Previous Health Foundation research shows that after adjusting for need, practices serving more deprived populations receive less funding on average than those serving less deprived populations, and that there are fewer GPs per head of need adjusted population in deprived areas than in affluent ones.[70]

From a workforce planning perspective, it is also interesting to consider the distribution of GPs by their country of primary medical qualification (PMQ) or their first GMC-recognised medical qualification. 3 in 4 qualified permanent GPs (75%) in England had a UK PMQ in December 2021 (Figure 16), with a further 16% having a non-EEA PMQ and 4% having an EEA PMQ (the PMQ area of the remaining 6% being unknown).

A majority of GPs in training grade in England (59%) also had a UK PMQ in December 2021, but this was down from 71% in December 2017, largely because of a substantial increase in the proportion of GPs in training who had a PMQ from outside the EEA in this period (from 16% to 36%, Figure 16). This aligns with recent General Medical Council research on the drivers of international migration of doctors to and from the UK, underlining that in recent years the migration of non-EEA PMQ doctors (including but not restricted to GPs) to the UK has increased more rapidly than general migration.[71] This research emphasised that while non-EEA PMQ doctors tend to spend longer on the medical register before leaving relative to EEA PMQ doctors, this gap has narrowed since 2013.

Figure 16: Qualified permanent GPs and GPs in training by country of primary medical qualification grouping, December 2017 and December 2021, percentages of headcount

Qualified permanent GPs*

Legend: UK · EEA · Elsewhere · Unknown

	Dec 2017	Dec 2021
Unknown	5%	6%
Elsewhere	16%	16%
EEA	4%	4%
UK	75%	75%

GPs in training grade

	Dec 2017	Dec 2021
Unknown	10%	
Elsewhere	16%	36%
EEA	3%	5%
UK	71%	59%

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).

*Note: Qualified permanent FTE GPs include GP partners, salaried GPs and GP retainers.

Nurses in general practice

Building on the General Practice Forward View (2016),[72] HEE made a series of recommendations for stakeholders to support and expand the general practice nursing workforce in its workforce development plan in 2017.[73] In 2018, NHS England published a ten-point action plan for general practice nursing.[74] This plan sets out key changes required to improve recruitment and retention in general practice nursing.

Of the roughly 16,500 FTE nurses in general practice in England in December 2021, just over two-thirds (68%) were practice nurses, down from 72% in December 2017 (Figure 17). The other major group is that of advanced nurse practitioners, which accounts for nearly a quarter (24%) of nurses in general practice in December 2021 (up from 20% in December 2017).

In absolute terms, the total number of FTE nurses in general practice grew by 5% between December 2017 and December 2019 before declining very gradually, by 1%, over the 2 years to December 2021. The number of practice nurses declined by 3% between December 2017 and December 2021 (from around 11,500 to 11,200), but the number of advanced nurse practitioners grew by 23%, from around 3,200 to nearly 3,900.

Figure 17: FTE nurses in general practice in England by nurse category, December 2017–December 2021

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services).
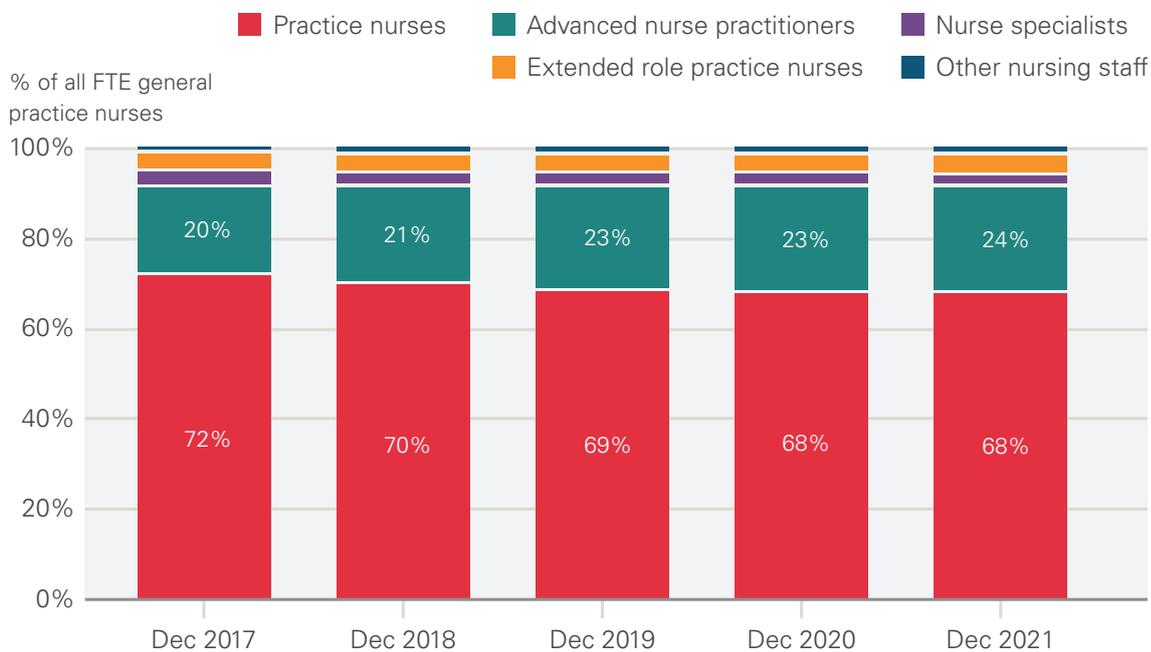
The great majority of nurses in general practice are women (94% in December 2021).* Further, a majority of nurses in general practice work part time: over 4 in 5 (83%) worked part time in December 2021, down slightly from 85% in December 2017.

On average, nurses in general practice tend to be older, with two-thirds (67%) of the headcount aged 45 or older in December 2021,[56] relative to 55% of the registered nurse headcount in the HCHS community nursing sector[75] (Figure 18). Over the past 4 years, the distribution has moved towards younger and older age groups, with increases in the proportions of FTE nurses aged up to 35 and older than 59, but marked declines in the proportion aged between 45 and 54. As with GPs, there is also considerable regional variation in the distribution of nurses in general practice.

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*   Data on sex were not available for 2% of FTE nurses in general practice in December 2021.

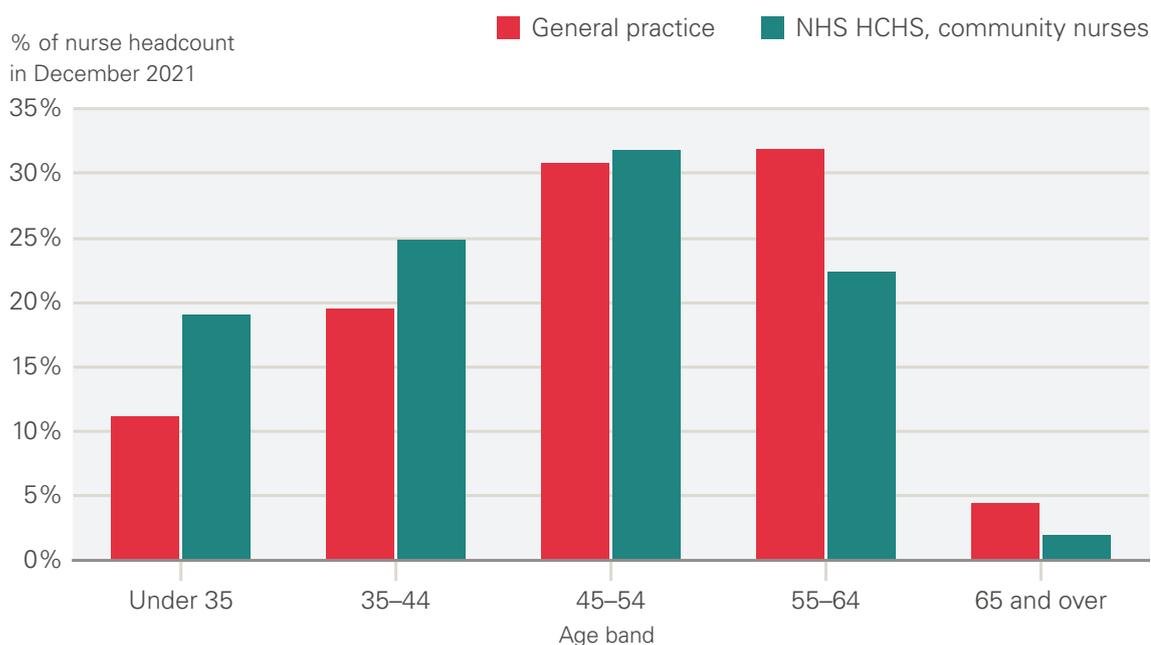**Figure 18: Nurses in general practice and the NHS HCHS in England by age band, headcount, December 2021**

Source: NHS Digital, General Practice Workforce (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services) and NHS Digital, NHS workforce statistics (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics).

Note: Due to rounding and a small number of general practice nurses whose age was recorded as 'unknown', totals may not add to 100%.

Other DPC staff in general practice

The introduction of PCNs in 2019 (section 2.4) – supported by additional funding through the ARRS – was instrumental in the number of DPC staff in general practice increasing at a substantially more rapid rate than GP and nurse numbers between December 2019 and December 2021 (Table 6). The ARRS was designed to promote the expansion of multidisciplinary general practice teams[8] in support of the government's target of hiring 26,000 additional FTE professionals in specific general practice roles by the end of 2023/24 (relative to 2018/19). This was rooted in the *NHS Long Term Plan* acknowledging that investment in general practice had declined relative to the rest of the NHS between 2004 and 2014,[9] even as demand and the complexity of patient needs grew, contributing to increased pressure on staff and GPs and practice nurses leaving at a faster-than-replacement rate.[51]

Table 6: FTE DPC staff numbers in general practice (including practices and PCNs) in England, December 2017–December 2021*

Staff group	2017	2019	% change, 2017–2019**	2021	% change, 2019–2021**
Roles that have received funding through the ARRS					
Care coordinators	0	0	n/a	1,108	n/a
Health support workers	0	0	n/a	178	n/a
Nursing associates	13	84	566%	303	260%
Paramedics	216	612	184%	1,203	97%
Clinical pharmacists	584	1,241	112%	4,684	277%
Pharmacy technicians	0	71	n/a	989	1,299%
Physiotherapists/first contact physiotherapists	24	47	94%	904	1,818%
Physician associates	55	268	383%	937	250%
Podiatrists	0	0	n/a	24	n/a
Social prescribing link workers	0	88	n/a	1,806	1,950%
Trainee nursing associates	0	0	n/a	213	n/a
Other DPC staff***	401	437	9%	1,091	149%
Roles that have not received funding through the ARRS					
Dispensers	2,198	2,263	3%	2,264	0%
Healthcare assistants	5,751	6,468	12%	6,832	6%
Phlebotomists	657	675	3%	787	16%
Apprentices	526	355	-32%	257	-28%
IAPT staff	0	11	n/a	25	136%
Trainee IAPT staff	0	0	n/a	3	n/a
All DPC staff (excluding GPs and nurses)	**10,447**	**12,653**	**21%**	**23,759**	**88%**
GPs	**34,287**	**35,519**	**1%**	**36,342**	**5%**
General practice nurses	**16,034**	**16,763**	**5%**	**16,534**	**-1%**

Source: NHS Digital. General Practice Workforce, 31 December 2021. NHS Digital; 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/31-december-2021) and NHS Digital. Primary Care Network Workforce, 31 December 2021. NHS Digital; 2022 (https://digital.nhs.uk/data-and-information/publications/statistical/primary-care-network-workforce/31-december-2021).

*Note: Numbers are for December in each year and are in FTE unless otherwise specified. Input obtained from NHS Digital suggests that the FTE data in the general practice workforce series and the PCN workforce series can be aggregated with double-counting being unlikely but not impossible (and may arise in a few instances where the same staff are employed by practices and PCNs but recorded separately in the general practice workforce and PCN workforce headcount datasets). In December 2021, 18% of PCNs did not submit data on FTE staffing. We restrict our attention to FTE data from the remaining 82% of PCNs that did provide data and the general practice workforce data series to minimise the risks of double-counting. Both datasets record clinical pharmacists as 'Pharmacists' and first contact physiotherapists as 'Physiotherapists'. Reported staff numbers for 2021 may include temporary changes in staff numbers as part of the response to the COVID-19 pandemic.

**Percentages are rounded.

***The 'Other DPC' staff category covers a mix of roles not included elsewhere, for which data standardisation is ongoing (eg dieticians, some mental health practitioners and health and wellbeing coaches). Many, but not necessarily all, of these roles are likely to be covered by ARRS funding.

While ARRS-funded roles have seen substantial increases in numbers in the past 2 years, other roles, such as healthcare assistants and dispensers, have not.[*] These roles were not prioritised through the ARRS as the pool of these staff working in general practice has historically been large and relatively stable. As a result, the proportion of healthcare assistants in the DPC category fell from 55% to 31% between December 2017 and December 2021, although absolute numbers remained fairly flat.

While the sex distribution varies across DPC staff groups, overall, the majority of DPC staff working in general practices are women although the share of men working in DPC roles in practices has increased gradually over the past 4 years (from 7% in December 2017 to 13% in December 2021).[†]

NHS Digital data point to substantial variation in the regional distributions of the DPC workforce and in the proportion of DPC staff working full time and part time across different roles.[56] While our projections are at the national level and we do not explore this variation further due to data limitations, it presents fertile ground for future research, particularly from the standpoint of equity of primary care access.

Administrative or non-clinical staff in general practice

Administrative staff are the biggest single staff group in general practice in England, accounting for nearly half (49%) of the general practice workforce in December 2021. Receptionists accounted for just over half (53%) of FTE administrative staff in December 2021, with managers and medical secretaries accounting for a further 24%. The number of administrative staff increased by 14% between December 2017 (65,400) and December 2021 (71,100).

The introduction of PCNs led to increases in the recruitment of administrative or non-clinical staff, but these increases were considerably less marked than in the case of DPC staff. While administrative staff are an indispensable component of the general practice workforce, our 'deep dive' projections do not cover this staff group (as discussed further in section 5.2), but we include them in our high-level analysis of the overall NHS workforce supply-demand gap in section 3.4.

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[*]   In this report, we use the phrase 'ARRS-funded roles' to refer to DPC staff roles in general practice that have been supported by ARRS funding. While these roles existed in general practice prior to 2019, the ARRS provided an incentive for accelerated recruitment to these roles.

[†]   At the time of writing, these data are reported for general practices only and not for PCNs.

2.4.2 Emerging evidence of the impact of COVID-19 on the general practice workforce

In 2019, a Commonwealth Fund survey of primary care physicians across 11 countries indicated that even before the pandemic, GPs in the UK reported high stress levels and felt that the quality of care that they and the wider NHS could provide was declining.[76] This section discusses evidence on how the pandemic has affected the general practice workforce so far.

NHS Digital data suggest that the number of qualified permanent GPs (all GPs excluding GPs in training and locum GPs) declined slowly but steadily between December 2017 and December 2019 (see section 2.4.1). Since the beginning of 2020, GPs and other general practice staff have had to face many different challenges, including the rollout of remote consultations in 2020,[77] dealing with a backlog of delayed care,[78] delivering COVID-19 vaccination[79] and diagnosing and delivering care for those with long COVID.[80] General practice has also had to grapple with negative media coverage during this time that has taken a toll on GP morale. In October 2020, an open letter from GPs highlighting concerns around 'inaccurate and harmful' media messaging registered over 400 signatures.[81]

There is some evidence that the pandemic has led to increased workload pressures for GP trainees. In the 2021 GMC national training survey, the proportion of GP trainees reporting heavy or very heavy workloads through the day was 39%, a 9 percentage point increase relative to 2019.[82] Moreover, the pandemic also led to increased workload pressures for doctor trainers (doctors responsible for training medical students and other doctors), particularly GP trainers. The GMC's research points to 87% of GP trainers reporting heavy or very heavy workloads in 2021, up 6 percentage points relative to 2019.[82] This compares to 60% of secondary trainers reporting heavy or very heavy workloads in 2021 (relative to 66% in 2019). GP and wider medical training pathways were also disrupted by the pandemic: HEE has been leading the Postgraduate Medical Education and Training Recovery Programme to mitigate the resulting risks to doctor supply and enable continued training progression for junior doctors.[83]

Over the past year, GPs have attracted intense criticism around perceived issues with waiting times for appointments, virtual consultations, and their working patterns.[84] This is unlikely to have improved the attractiveness of general practice for newly qualified junior doctors when choosing their specialty. Despite this, HEE has reported a record number of trainees accepted onto specialist general practice training in 2021/22, with over 4,000 new GP recruits having joined the 8,424 GPs in training in placements across England in 2021/22.[85] As noted, this may be partly attributable to an increase in international recruitment: the proportion of GP trainees with an original medical qualification obtained outside the EEA more than doubled between December 2017 (16%) and December 2021 (36%). Whether the lifting of the post-A-level cap on medical and dental student numbers in 2020 and 2021 translates into significant increases in GP trainee numbers in the latter half of the coming decade remains to be seen.[86]

Findings from the Eleventh National GP Worklife Survey (2021), published in April 2022, offer fresh insights into the impact of the pandemic on working GPs.[87] The 2,200-plus responses pointed to some positives including high proportions of GPs being satisfied with their colleagues and physical working environment. However, the results also contain a number of worrying findings.

Overall job satisfaction fell significantly between 2019 and 2021 among respondent GPs. Increasing workloads, increased patient demands, paperwork (electronic included) and a feeling of having insufficient time to do their job were factors that were reported as being at higher pressure levels relative to earlier (pre-2019) surveys. While average levels of reported pressures fell between 2019 and 2021, there were noteworthy exceptions: 'adverse publicity by the media', 'dealing with problem patients' and 'increased demands from patients'. Over a third (33.4%) of respondents reported a considerable or high likelihood of them leaving 'direct patient care' within 5 years, with GPs aged 50 and older being significantly more likely (60.5%) to report this relative to those under 50 (15.5%). The trend for this intention to quit, however, has been declining for GPs aged 50 and older since 2019 and rising for those younger than 50.

The pandemic has driven important shifts in the delivery of primary care through general practice in England, the full impact of which on the workforce will take time to discern. The move toward remote instead of face-to-face patient care in the early stages of the pandemic forced health care systems to adapt their delivery of care,[88] the longer term impact of which remains to be seen. The pandemic is also likely to have impacted the ability and capacity of PCNs to recruit into ARRS-funded roles. Further, in the longer term there is potential for a substantial proportion of administrative tasks in general practice to be automated.[89] All of this has implications for both the demand for and supply of primary care through general practice.

3.
Projections of the overall gap between workforce demand and supply

3.1 Introduction

This chapter presents updated projections of the overall gap between workforce supply and demand in the NHS HCHS and general practice in England up to 2030/31. We describe the methodology underlying these projections and discuss the outlook for the overall NHS workforce supply-demand gap in the decade to 2030/31. Figures are in FTE unless otherwise specified.

3.2 Workforce demand

We discussed our projections of NHS workforce demand – the number of FTE staff that we project the NHS HCHS and general practice in England will need up to 2030/31 – in a recent working paper.[90] These estimates were an update from our 2021 funding projections analysis (see section 3.4).

The demand projection that we use in this report, in a scenario that assumes a continuation of a declining recent trend in the average time spent in hospital but at a slower rate, is that the HCHS and general practice would need around 314,000 more FTE 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, between 2021/22 and 2030/31, the demand for FTE NHS staff is projected to grow by around 22% over and above existing vacancies, approximately 2.2% a year. This compares to historical 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.

3.3 Workforce supply

Assessing whether workforce supply growth can meet projected increases in health care demand is central to effective workforce planning. Our analysis assumes the following for FTE NHS workforce supply in the period from 2021/22 to 2030/31:

• The number of staff in post in the NHS HCHS grows in line with the average trend rate of around 1.7% a year between 1995/96 and 2019/20.[*]

• Our projections for growth in the numbers of GPs, general practice nurses and other DPC staff in general practice are drawn from our current policy scenario and are discussed in section 5.3.

• For this high-level analysis only, we include administrative or non-clinical staff in general practice. We assume that the ratio of these staff to clinical general practice staff (GPs, nurses and other DPC staff) in 2021/22 remains unchanged to 2030/31 to arrive at projections of workforce supply for this group.

3.4 Measuring the workforce 'gap' or shortfall

Our projections suggest that the overall NHS workforce shortfall stood at around 103,000 FTE in 2021/22, approximately 7% of the estimated number of FTE staff needed.[†] We estimate that registered nurses and patient care staff in general practice (GPs, nurses and other DPC staff) account for a little over 40% of this shortfall. This underscores the relevance of our focusing on these staff groups in the 'deep dive' projections analysis in Chapter 4 and Chapter 5.

Based on current trends and without major shifts in workforce policy and planning, this shortfall is projected to increase to around 180,000 FTE by 2024/25 (Figure 19). If the status quo persists in the medium term, the shortfall is projected to decline to around 160,000 FTE by 2030/31, around 9% of projected FTE demand. This decline is largely attributable to our modelling of NHS workforce demand growth tapering off in the latter half of this decade (see section 3.2 and our recent working paper).[90]

Our analysis suggests that based on historical pre-pandemic workforce supply trends and accounting for current policies, the NHS workforce would grow from around 1.35 million FTE in 2021/22 to around 1.6 million FTE in 2030/31. To meet the projected increases in demand discussed in section 3.2, the workforce would instead need to increase to around 1.76 million FTE by 2030/31 in order to deliver 2019/20 rates of care, generating the projected shortfall of 160,000 FTE.

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[*] We use FTE staff-in-post data from NHS Digital for September in each year, so for 2019/20 we use September 2019 data, which predate the pandemic.

[†] This is based on NHS Digital data on NHS HCHS workforce supply and vacancy rates up to December 2021. In the quarter to December 2021, the HCHS registered a total of just over 110,000 FTE staff vacancies.

These projections differ from the corresponding figures in the REAL Centre's 2021 funding projections report[12] due to changes in our workforce demand estimation methodology. Our updated projections 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, which can lead to reductions in the average time spent by NHS staff per patient.* Further, we use updated workforce supply data to September 2021 in the current analysis that reflect more rapid growth in NHS staff numbers over the past 3 years relative to the 2010/11–2018/19 period (while the 2021 funding projections report used workforce supply data to September 2018). For the same reasons, our projected gap of 160,000 FTE is lower than our headline projected gap of 250,000 FTE in *Closing the gap* (2019),[6] which covered only the NHS HCHS workforce.

These are high-level projections rather than forecasts. Their value is in emphasising the scale of the challenge facing policymakers. Even assuming modest improvements in staff time per patient in hospitals, as our 'central' demand scenario does, we project that NHS workforce demand will grow by around 2.2% a year between 2021/22 and 2030/31, whereas NHS workforce supply across the HCHS and general practice is projected to grow more slowly at around 2% a year (based on historical trend growth rates). Importantly, even this modest annual 2% projection for workforce supply growth appears ambitious in light of the most recent trends: it is over three times the estimated annual rate of FTE NHS workforce growth between 2010 and 2019.[90] The next few years may prove particularly challenging, as the labour market is tight, unemployment is low, and public sector pay settlements are unlikely to keep pace with inflation.

A gap between projected supply and demand indicates the number of staff projected to be available on current trends is unlikely to be sufficient to deliver 2018/19 rates of care using existing models of care. The NHS can respond to this in three ways. The first is to try to recruit additional staff and improve retention rates for existing staff. Recruitment requires time, forward planning and additional investment from the government in terms of both training and recruitment costs and wages. However, this is likely to become more challenging when the labour market is tight, underscoring the importance of improving retention rates. The second is to accept lower performance targets or rates of care so that the NHS delivers below 2018/19 rates of care. The third is to try to change how care is provided, by using fewer staff per patient or a changing skill mix. The risk is that this compromises quality of care and risks more staff burnout. There is a limit to the increases in productivity that can be achieved in a labour-intensive industry such as health care.

Over the past decade, we have seen all three of these responses. There are now more staff in the NHS than a decade ago (Table 4). But changes in care models have contributed to staff numbers growing more slowly than activity rates in the decade

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* Other variables that can influence service productivity, such as workforce composition and technological change, are not currently accounted for in our analysis.

preceding the pandemic,[3] and waiting lists have grown longer.[12] Whether and how these shifts persist or play out further in the coming years will have a bearing on the projected workforce supply-demand gap.

Figure 19: Supply of and demand for FTE NHS staff (NHS HCHS and general practice), 2015/16–2030/31 (projections for 2022/23 onwards)*

Full-time equivalents
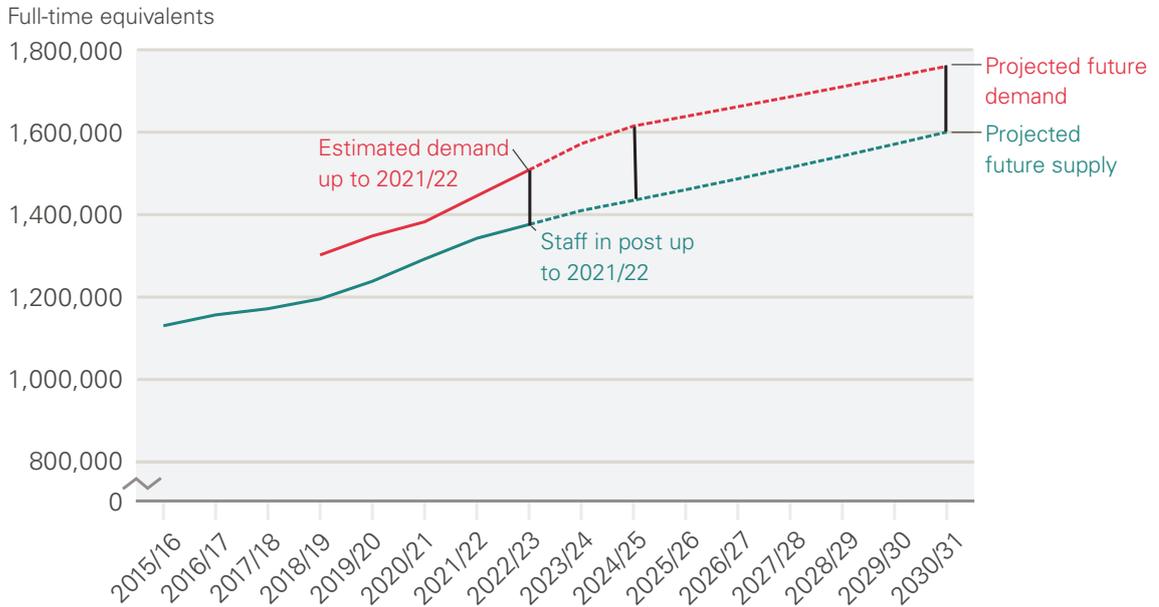
Historic or projected compound annual growth rates,
FTE NHS workforce in England (NHS HCHS and general practice)
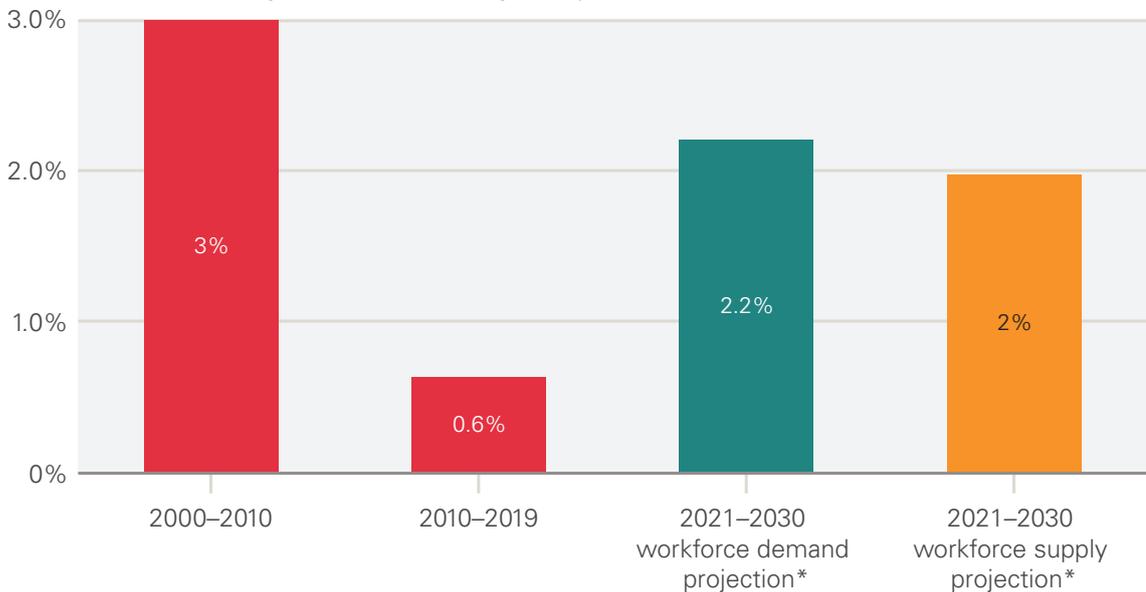
Source: REAL Centre analysis of workforce and vacancy data from NHS Digital and Health Education England (we use data for September in each year from 2015/16–2021/22).

*Note: These projections cover NHS HCHS staff and general practice staff in England. They do not fully account for the impact of the COVID-19 pandemic, beyond using available NHS Digital workforce supply data up to September 2021 in estimating future NHS workforce demand (where this impact might in part be reflected).

Our projections highlight the necessity of comprehensive long-term planning for tackling the NHS workforce shortfall. However, a full assessment of the policy changes that this might point to for the entire NHS workforce is beyond the scope of this report.

4.
Nurse supply projections

4.1 Introduction

This chapter presents projections of the future supply and demand of registered NHS nurses in England up to 2030/31, derived from the REAL Centre's nurse supply model.[20] We focus on two points in particular: 2023/24 (the end of the current parliament) and 2030/31 (the end of the decade). We explore the relative impact on increasing nursing numbers of the main policy options: domestic recruitment, retention, and international recruitment. Figures are FTE unless stated otherwise.

Given the prominence of the NHS HCHS sector in the nurse labour market in England (discussed in section 2.3), unless stated otherwise, our projections focus on future nurse supply in the HCHS. Projections of future nurse supply in general practice, adult social care and the independent and other sectors are briefly outlined in Annex D, with a fuller discussion of the challenges facing general practice nurse supply in section 5.3.2.

4.2 Projections of nurse supply

4.2.1 HCHS nurse supply scenarios

In this section we describe the three scenarios used in our nurse supply projections to 2030/31 and their underlying assumptions.

1. **'Current policy'** is a baseline scenario in which overall nurse supply between 2021/22 and 2030/31 largely grows in line with the trend up to 2019/20. It assumes no policy intervention beyond 2021/22 other than some continued growth in international recruitment to increase FTE nurse numbers.

2. In the **'optimistic'** scenario, sustained policy action is undertaken to achieve increases in nurse supply through the three major supply channels: increases in the number of nurses in training, increased international nurse recruitment, and improved retention of existing nurse staff.

3. The **'pessimistic'** scenario highlights key risks to future patterns of nurse supply, some of which are likely to have been exacerbated by the COVID-19 pandemic.

We summarise these scenarios and their underlying assumptions in Table 7, drawing from the analysis in section 2.3. A more in-depth explanation of the thinking underlying our assumptions is available in Annex C.

Table 7: Scenarios and assumptions for projections of future nurse supply

Variable	Trend data	Current policy	Optimistic scenario	Pessimistic scenario
Number of students starting an undergraduate nursing degree programme (note: this does not include nurse apprentices as there is a lack of data on this group)	Increased from around 23,000 in 2019/20 to nearly 29,000 in 2020/21 and 29,200 in 2021/22 (section 2.3.2)	Remains **unchanged** relative to 2020/21	**Increases** by 1,050 a year from 2021/22 to 2024/25 and is constant thereafter	**Declines** by 1,050 a year from 2021/22 to 2024/25 and is constant thereafter
Nurse student attrition rate (proportion of students who leave undergraduate nursing degree programmes prior to completion)	Lack of data – *Nursing Standard* FOI data suggests a nurse student attrition rate of around 25% between 2017/18 and 2019/20, with a possible increase in 2020/21, but this is likely to be overstated (see section 2.3.2)	Remains **unchanged** relative to 2020/21*	**Increases** by 5 percentage points in 2021/22 and is unchanged in 2022/23, but falls by 10 percentage points in 2023/24 and remains constant thereafter	**Increases** by 5 percentage points in 2021/22 and is unchanged in 2022/23, subsequently falling by 2 percentage points in 2023/24 and remaining constant thereafter
Number of nurses from other countries who join the nurse workforce in England	Rapid increases in the number of nurses trained outside the UK newly registering with the NMC in recent years (see Annex C)	**Increases** by 1,050 a year from 2021/22 to 2024/25 and **thereafter remains unchanged** up to 2030/31	**Increases** by 2,100 a year from 2021/22 to 2024/25 and **thereafter increases** by 700 a year up to 2030/31	**Increases** by 1,050 a year in 2021/22 and 2022/23 and **thereafter falls** by 700 a year up to 2030/31
Proportion of nurses who retire from the nurse workforce prior to having reached retirement age (55 and over)	As a proportion of the overall FTE HCHS nurse workforce, declined from 8.2% to 7.1% between 2019/20 and 2020/21 (Annex C)	**Remains unchanged** relative to 2020/21	**Decreases** by 0.25 percentage points a year from 2021/22 to 2030/31	**Increases** by 0.25 percentage points a year from 2021/22 to 2030/31

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* In the nurse supply model that we use, as there is no available data on nurse student attrition (as discussed in section 2.3.2), the model uses the average proportion of students leaving programmes in any given academic year (Higher Education Statistics Agency data which were obtained from Jisc, which provides digital solutions for UK education and research including delivering HESA data analytics services): Cave S, Woodham E, Derbyshire K, Lewis S, Wildblood R, Shembavnekar N. Nurse supply model: overview. The Health Foundation; 2021 (www.health.org.uk/publications/nurse-supply-model-overview).

Variable	Trend data	Current policy	Optimistic scenario	Pessimistic scenario
Proportion of nurses who retire from the nurse workforce after having reached retirement age (55 and over)	Around 2% of the overall FTE HCHS nurse workforce in 2019/20 and 2020/21 (Annex C)	**Remains unchanged** relative to 2020/21	**Decreases** by 0.1 percentage points a year from 2021/22 to 2030/31	**Increases** by 0.1 percentage points a year from 2021/22 to 2030/31
Nurse FTE-to-headcount ratio	Virtually unchanged at around 0.90 for HCHS nurses and health visitors between December 2016 and December 2021 (Annex C)	**Remains unchanged** relative to 2020/21	**Remains unchanged** relative to 2020/21	**Decreases** by 0.01 every year from 2021/22 to 2030/31

4.2.2 HCHS nurse supply projections

In this section, we present projections of HCHS nurse workforce supply under the three scenarios discussed in section 4.2.1. Unless stated otherwise, projections are in FTE.

Our projections focus on two endpoints of particular interest: 2023/24 (the 'deadline' for meeting the government's 50,000 nurse target) and 2030/31 (the end of the current decade). Section D.1 in Annex D discusses the sensitivity of the results to changes in specific assumptions and the extent to which our projections vary by sector (branch of nursing) and region (geography).

Applying the assumptions for nurse supply in Table 7, we use the REAL Centre's nurse supply model to derive the HCHS nurse supply projections presented in Table 8. We compare these projections with our projections of HCHS nurse demand to estimate the shortfall of nurses relative to demand in 2021/22 and to project this shortfall to 2023/24 and 2030/31.

Table 8: Potential FTE nurse supply and demand in the NHS HCHS in England, 2021/22–2030/31

	2021/22	2023/24	Projected supply-demand gap, 2023/24	2030/31	Projected supply-demand gap, 2030/31	Projected average annual growth rate, 2021/22–2030/31
Demand	350,700	369,000		412,900		1.8%
Supply: Current policy	306,200	318,400	-50,600	382,600	-30,300	2.5%
Supply: Optimistic	306,200	322,800	-46,200	457,300	44,400	4.6%
Supply: Pessimistic	302,800	305,100	-63,900	272,300	-140,600	-1.2%

Source: REAL Centre analysis based on the nurse supply model (using a range of data sources). Numbers are rounded.

Projections to 2023/24

Figure 20 presents our projections of FTE nurse supply and demand up to 2023/24. This highlights that in the short term, across all scenarios, the existing shortfall between the projected demand and supply will worsen over time. In the current policy scenario, the shortfall is projected to grow from around 44,500 nurses in 2021/22 to around 50,600 nurses in 2023/24.[*] In the optimistic scenario, the shortfall in 2023/24 is projected to be around 46,200, while in the pessimistic scenario it grows to nearly 64,000. In the current policy and optimistic scenarios, nurse supply grows by 4% and 5% by 2023/24 relative to 2021/22, whereas in the pessimistic scenario it grows by only 1%.

Figure 20: FTE nurse supply and demand projections for the NHS HCHS in England, 2020/21–2023/24, under the three scenarios
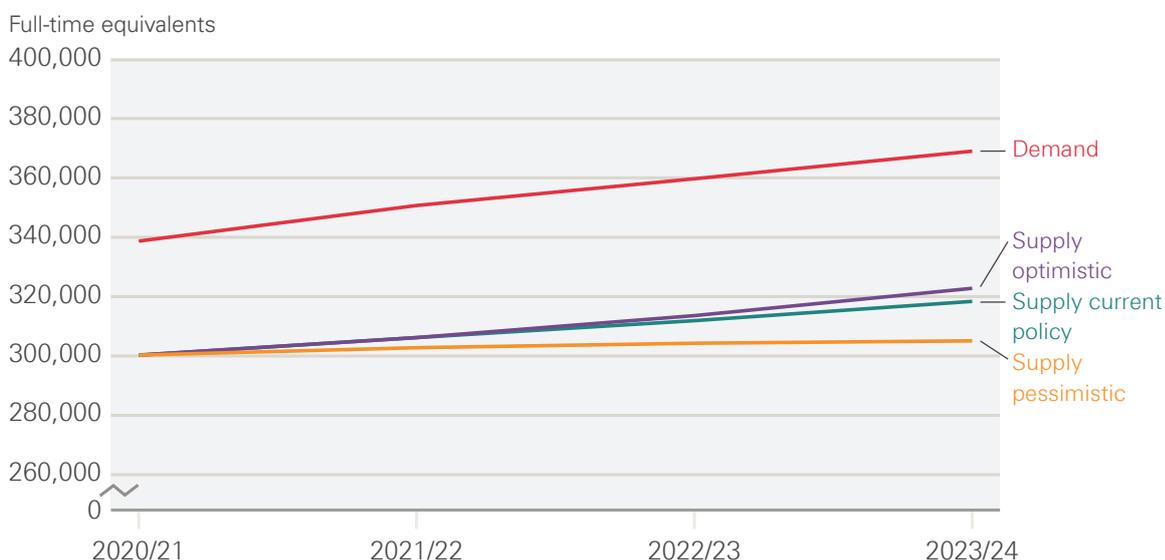
Source: REAL Centre analysis using the nurse supply model based on a range of data sources.

*Note: The REAL Centre nurse supply model uses data from a range of sources. At the time of writing, the model has updated data up to 2020/21. Numbers are rounded and estimates for 2021/22 onwards are projections.

Figure 21 presents a waterfall chart for the current policy scenario, breaking down the overall nurse supply projections for 2020/21–2023/24 across the key supply channels (newly qualified nurses joining the workforce, international recruitment and nurse retention and turnover). Corresponding charts for the optimistic and pessimistic scenarios are available in Annex D.

Figure 21 suggests that in the short term, international nurse recruitment and staff retention are the key levers policy can focus on to boost nurse supply. This is unsurprising given the lead time of 3–5 years from acceptance to pre-registration nurse education to entering the workforce. The optimistic scenario sees

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*   The estimated supply-demand shortfall in 2020/21 in the REAL Centre nurse supply model is slightly less than the reported number of registered nurse FTE vacancies in the NHS HCHS in 2020/21. This is because the nurse supply model accounts for NHS Digital nurse supply data in a larger number of nurse subgroups or segments relative to the NHS Digital vacancy data, so the same vacancy rate averages had to be applied to a number of relevant different nurse subgroups.

international nurse recruitment increasing substantially relative to the current policy scenario (which itself has increased international recruitment), whereas the pessimistic scenario sees a significant fall in the number of international nurses recruited up to 2023/24.

Figure 21: FTE nurse supply projections in the NHS HCHS in England in the 'current policy' scenario, 2020/21–2023/24, waterfall chart*
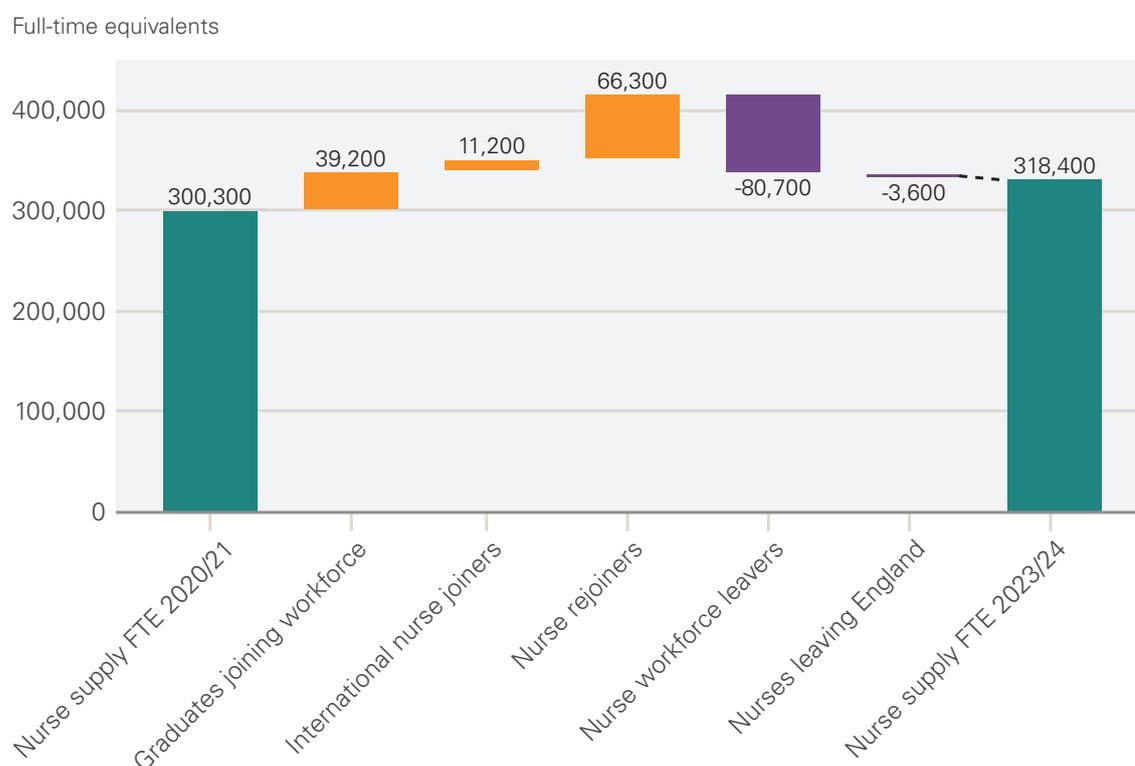
Full-time equivalents

Source: REAL Centre analysis using the nurse supply model based on a range of data sources.
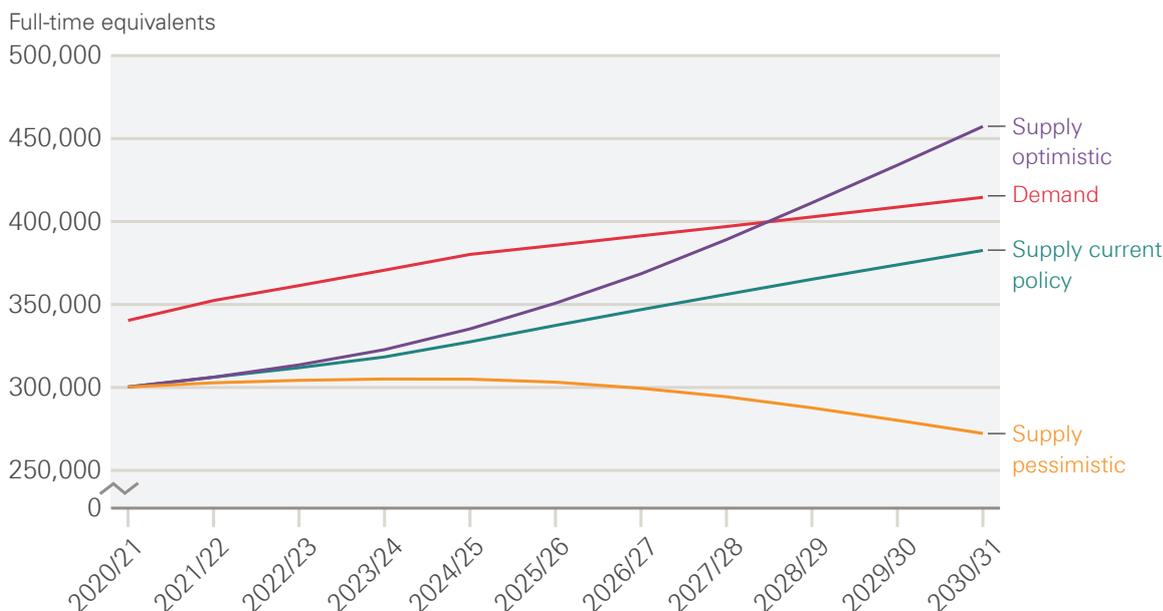
*Note: The REAL Centre nurse supply model uses data from a range of sources. At the time of writing, the model has updated data up to 2020/21. This chart is derived from headcount data for registered nurses. As the 'current policy' scenario assumes that the nurse FTE-to-headcount ratio remains unchanged over time, we use the nurse FTE-to-headcount ratio observed in 2020/21 data to convert headcount numbers to FTE estimates. Numbers are rounded.

Projections to 2030/31

Figure 22 presents our longer term projections of FTE nurse supply and demand up to 2030/31, using the same three scenarios. Compared with Figure 20, the divergence in the supply projections across the three scenarios after 2023/24 is striking. In the current policy scenario, the nurse supply-demand shortfall declines, falling from around 50,600 in 2023/24 to around 30,300 by 2030/31. However, in the optimistic scenario, nurse supply steadily increases more rapidly than projected growth in demand, potentially 'catching up' with projected demand in 2028/29 and yielding a surplus by the end of the decade. Even in this scenario, the 'catching up' needs time to build momentum and deliver sustained increases in supply. This highlights the importance of long-term workforce policy and planning if the nursing shortfall is to be overcome.

Conversely, in the pessimistic scenario, HCHS nurse supply increases very slowly up to 2023/24 and subsequently starts declining (Figure 22), falling from around 305,000 in 2023/24 to around 272,000 by 2030/31. This results in a nurse supply-demand shortfall of around 64,000 in 2023/24, projected to balloon to around 140,600 by the end of the decade.

Figure 22: FTE nurse supply and demand projections for the NHS HCHS in England, 2020/21–2030/31, under the three scenarios

Source: REAL Centre analysis using the nurse supply model based on a range of data sources.

*Note: The REAL Centre nurse supply model uses data from a range of sources. At the time of writing, the model has updated data up to 2020/21. Numbers are rounded and estimates for 2021/22 onwards are projections.

The differences between the relative impact of the different supply channels are more prominent in the longer term (Figure 23, up to 2030/31) compared with the shorter term (Figure 21, up to 2023/24). For example, our assumptions on international nurse recruitment result in a projection of around 37,500 FTE additional nurses from outside the UK joining the nursing workforce in England between 2020/21 and 2030/31 in the optimistic scenario (Annex D) relative to the current policy scenario.

Further, in the pessimistic scenario, our assumptions on future changes in the number of nurses in undergraduate education and the student nurse attrition rate have a more visible impact on FTE nurse supply by the end of the decade. The pessimistic scenario projection of the number of newly qualified FTE nurses joining the workforce between 2020/21 and 2030/31 is around 38,600 less than the corresponding current policy projection (Annex D).

Figure 23: FTE nurse supply projections in the NHS HCHS in England in the current policy scenario, 2020/21–2030/31, waterfall chart*
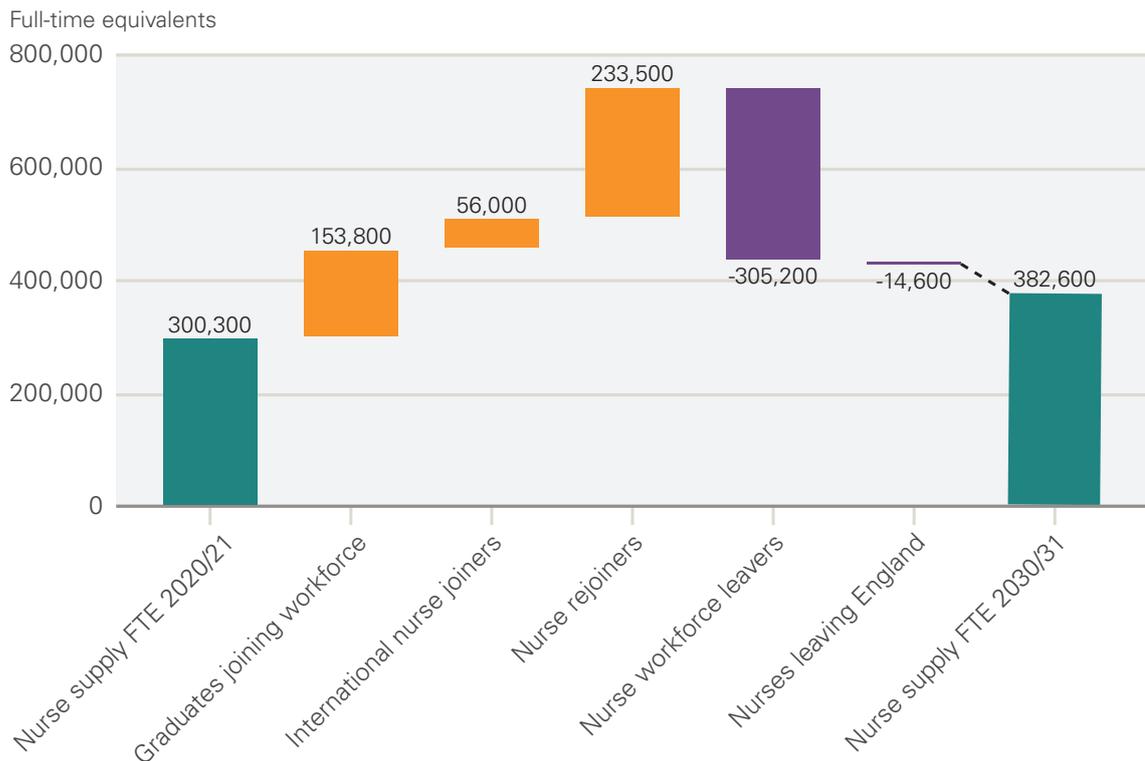
Full-time equivalents

Source: REAL Centre analysis using the nurse supply model based on a range of data sources.

*Note: The REAL Centre nurse supply model uses data from a range of sources. At the time of writing, the model has updated data up to 2020/21. This chart is derived from headcount data for registered nurses. As the 'current policy' scenario assumes that the nurse FTE-to-headcount ratio remains unchanged over time, we use the nurse FTE-to-headcount ratio observed in 2020/21 data to convert headcount numbers to FTE estimates. Numbers are rounded.

In Annex D, we present the results of some sensitivity analysis for these three scenarios, which showcases how changes in any of the three main supply channels can influence our projections even if our other assumptions are unchanged. While the discussion so far has focused on FTE nurse supply and demand projections at a national (all England) level, it is important to note there is much variation in nurse supply and vacancy rates across sectors (branches of nursing) and regions (as highlighted in section 2.3.1).

5. General practice workforce supply projections

5.1 Introduction

This chapter presents projections of future workforce supply and demand in general practice in England up to 2030/31, focusing on two points in particular: 2023/24 (the end of the current parliament) and 2030/31 (the end of the decade). Figures are FTE unless stated otherwise.

Our projections cover GPs, general practice nurses and other DPC staff in general practice. Our GP projections refer to qualified permanent FTE GP numbers (all FTE GPs other than GPs in training and locum GPs). For general practice nurses, our supply projections derive from the nurse supply model that yielded the nurse supply projections discussed in Chapter 4. For GPs and other DPC staff, we use publicly available data from NHS Digital and HEE. We do not provide supply and demand projections for administrative and non-clinical staff in general practice, although these roles account for nearly half of the FTE workforce in England. For reasons discussed in section 5.2, this is outside the scope of our report.

5.2 General practice workforce supply scenarios

In this section we describe three scenarios and our underlying assumptions for the future supply of GPs, general practice nurses and DPC staff up to 2030/31.

1. In the **'current policy' scenario**, general practice workforce supply increases in line with historical growth rates and accounting for the *NHS Long Term Plan* commitments up to 2023/24 and the ARRS and PCN policy initiatives.

2. The **'optimistic' scenario** envisages sustained additional policy action leading to more rapid growth in workforce supply relative to the 'current policy' scenario and further policy intervention being able to 'lock in' and fully realise the benefits of current policy.

3.   The **'pessimistic' scenario** highlights key risks to future increases in general practice workforce supply, some of which are likely to have been exacerbated by the pandemic. It accounts for the possibility of *NHS Long Term Plan* commitments not being fully met and the PCN and ARRS initiatives failing to realise their potential, with no further policy measures put in place aimed at boosting staff supply beyond 2023/24.

In all three scenarios:

- We undertake in-depth modelling of **GP workforce** supply based on data obtained from NHS Digital and HEE, again focusing on **qualified permanent FTE GP** numbers.

- We use the nurse supply model to obtain future supply projections for **nurses in general practice**.

- For **other DPC staff** (eg healthcare assistants, dispensers, phlebotomists, pharmacists, physiotherapists, physician associates, paramedics, occupational therapists, dietitians and podiatrists), we use publicly available NHS Digital data to model future increases in staff numbers. While the DPC staff group covers a wide range of very different roles, a lack of sufficiently detailed accessible data on the proportions of trainees in specific roles, who have historically moved to working in general practice, means that our analysis for this group is less granular than for the GP workforce. Our assumptions for this staff group differ for ARRS-funded roles and other roles.

- We do not model future supply of **administrative** or non-clinical staff, although these roles account for nearly half of all FTE staff in general practice. This is because the labour market for administrative staff differs in many ways from the other three groups listed. The drivers of staff retention and turnover in this market are very different. Moreover, there are no long lead training times of the type that characterise clinical care staff labour markets.

  Nonetheless, we acknowledge that administrative staff are indispensable in general practice teams. Recent research by The King's Fund points to how high-quality administrative work can lead to improved patient and staff experience, enhanced care and reduced inequalities.[91] This is backed by emerging NHS England case study evidence.[92]

Table 9 summarises the assumptions that characterise the three scenarios. Annexes E, F and G provide further information and sensitivity analysis.

Table 9: Scenarios and assumptions for projections of future general practice workforce supply

Variable/staff group	Current policy scenario	Optimistic scenario	Pessimistic scenario
Assumptions for FTE supply of GPs			
Number of newly qualified GPs joining the workforce (Recent trend: Increasing)	**Increases** from 1,400 to 2,100 a year (2021/22–2030/31)	**Increases** from 1,400 to 2,300 a year (2021/22–2030/31)	**Increases** from 1,400 to 1,900 a year (2021/22–2030/31)
Other (not newly qualified) GPs joining the workforce (Lack of publicly available data)	**Decreases** from 260 to 250 a year (2021/22–2030/31)	**Increases** from 260 to 300 a year (2021/22–2030/31)	**Decreases** from 260 to 200 a year (2021/22–2030/31)
GP leaver rates (Recent trend: Stable)	**Average leaver rates** for 2018/19–2021/22 apply for both pre-retirement and retirement age GPs from 2022/23–2030/31	**Declines** by 1 percentage point for both pre-retirement and retirement age GPs from 2022/23–2030/31	**Increases** by 5 percentage points for pre-retirement age GPs and by 2 percentage points for retirement age GPs from 2022/23–2030/31
International GP recruitment (Recent trend: Stable/ increasing for GP trainees)	**No net change**	100 additional FTE GPs trained in other countries **recruited** to the NHS every year from 2021/22 to 2030/31*	100 additional FTE GPs trained in other countries **leave** the NHS every year from 2021/22 to 2030/31*
Assumptions for FTE workforce supply excluding GPs			
Nurses (Recent trend: Stable)	Derived from the nurse supply current policy scenario for changes in nurse leaver rates (see section 4.2.1 and section 5.3.2)	Derived from the nurse supply optimistic scenario for changes in nurse leaver rates (see section 4.2.1 and section 5.3.2)	Derived from the nurse supply pessimistic scenario for changes in nurse leaver rates (see section 4.2.1 and section 5.3.2)
DPC staff covered by the ARRS† **Note: Target refers to hiring 26,000 additional FTE staff by 2023/24 (relative to 2018/19)** (Recent trend: Increasing)	The **target is met**. From 2024/25 to 2030/31, FTE **staff numbers grow at 6.4% a year**.	The **target is met**. From 2024/25 to 2030/31, FTE **staff numbers grow at 11.4% a year**.	The **target is missed** by 10%. From 2024/25 to 2030/31, FTE **staff numbers grow at 1.4% a year**.
DPC care staff not covered by the ARRS (Recent trend: Increasing)	**Staff numbers grow at 2.6% a year**, their historic compound annual growth rate over 2016–2019, through the decade to 2030/31.		

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* This is a net estimate (after accounting for the number of FTE GPs trained in other countries who leave general practice in England every year).

† The growth rates from 2024/25–2030/31 are based on the compound annual growth rate for the DPC staff group (2016–2019), ie the trend growth rates up to 2019. The current policy scenario assumes that this trend growth (6.4% a year) persists, whereas the optimistic and pessimistic scenarios assume growth rates of 5 percentage points above (11.4% a year) and below (1.4% a year) the trend growth rate.

Variable/staff group	Current policy scenario	Optimistic scenario	Pessimistic scenario
Skill mix/Expanded use of multidisciplinary teams and implications for GP demand (Recent trend: Evolving)	Policy action is restricted to the ongoing expansion of the workforce through the ARRS and PCN initiatives. General practice teams grow more multidisciplinary over time and increase the range and quality of services available to patients in general practice but this does not ultimately free up GP capacity. As a result, there is **no quantifiable impact on GP demand**.	Additional policy action facilitates increased use of a bigger and broader general practice workforce team, which is effectively utilised to provide both a greater range and quality of services in general practice and provide sufficient benefit to both practices and patients to free up GP capacity. As a result, **growth in DPC roles accounts for an overall reduction in GP demand between 2021/22 and 2030/31**. 1. In the short term, the first wave of DPC workforce expansion from 2018/19 to 2023/24 leads to GP demand in 2023/24 being 5% above the level that it reaches in the 'current policy' scenario, as even with effective integration of these roles in general practice teams, GPs will have increased supervision and training responsibilities in this period. 2. In the longer term, the benefits of effective multidisciplinary team working are realised between 2023/24 and 2030/31, which results in GP demand in 2030/31 being at least 10% below the level that it reaches in the current policy scenario. This represents benefits from the roles recruited up to 2023/24 being realised alongside a further, second wave of expansion of multidisciplinary teams working in general practice from 2024/25. The more multidisciplinary workforce leads to some unmet need in general practice also being met, which ultimately constrains GP demand in 2030/31 to be 9% below the level that it reaches in the 'current policy' scenario (see Annex E for further detail).	Policy action is restricted to the ongoing expansion of the workforce through the ARRS and PCN initiatives. General practice teams grow more multidisciplinary over time and this leads to GP demand in 2023/24 being 5% above the level that it reaches in the current policy scenario. This accounts for inadequate integration of newer roles which ultimately prove counterproductive and leads to increased GP workload pressures. From 2024/25 to 2030/31, more multidisciplinary general practice teams free up no GP time and so have **no further quantifiable impact on GP demand. This results in GP demand in 2030/31 being 5% above the level that it reaches in the current policy scenario**.

5.3 General practice workforce supply projections

In this section, we present projections of FTE workforce supply under the three scenarios for qualified permanent GPs, general practice nurses and DPC staff.

5.3.1 GP supply projections

Applying the assumptions for GP supply in Table 9 to publicly available data from NHS Digital and HEE leads to the projections presented in Table 10. We compare these projections with our projections of GP demand to estimate the shortfall of GPs relative to demand in 2021/22 and to project this shortfall to 2023/24 and 2030/31.

Table 10: FTE demand and supply estimates and projections for qualified permanent GPs in England, 2021/22–2030/31

|	Current policy scenario		Optimistic scenario		Pessimistic scenario	
	GP demand	GP supply	GP demand	GP supply	GP demand	GP supply
2021/22	31,300	27,000	31,300	27,000	31,300	27,000
Shortfall*	-4,200		-4,200		-4,200	
2023/24	33,700	26,400	35,200	26,900	35,400	25,700
Shortfall*	-7,300		-8,300		-9,700	
2030/31	37,800	27,100	34,400	31,100	39,700	19,400
Shortfall*	-10,700		-3,300		-20,400	

Source: Authors' analysis based on data from NHS Digital and Health Education England.

Note: The numbers in the table are rounded and refer to FTE qualified permanent GPs (ie all GPs excluding GPs in training and locum GPs); 2021/22 GP supply data are for March 2022 (source: NHS Digital).

*The shortfall is calculated as the difference between GP supply and demand. Due to rounding, the shortfall estimates presented in the table do not all align precisely with the differences between GP supply and demand in the corresponding cells.

Our analysis suggests that there was a shortage of around 4,200 GPs in 2021/22. In the current policy scenario, this shortfall is projected to increase to around 7,300 GPs by 2023/24 – around 22% of the projected demand for GPs – and to rise further to around 10,700 GPs by 2030/31 (Figure 24), over a quarter (around 28%) of projected demand. As discussed, this analysis accounts for the available data on the numbers of GPs entering specialty training up to 2021/22.

Figure 24: GP demand and supply projections for England, 2021/22–2030/31: current policy scenario
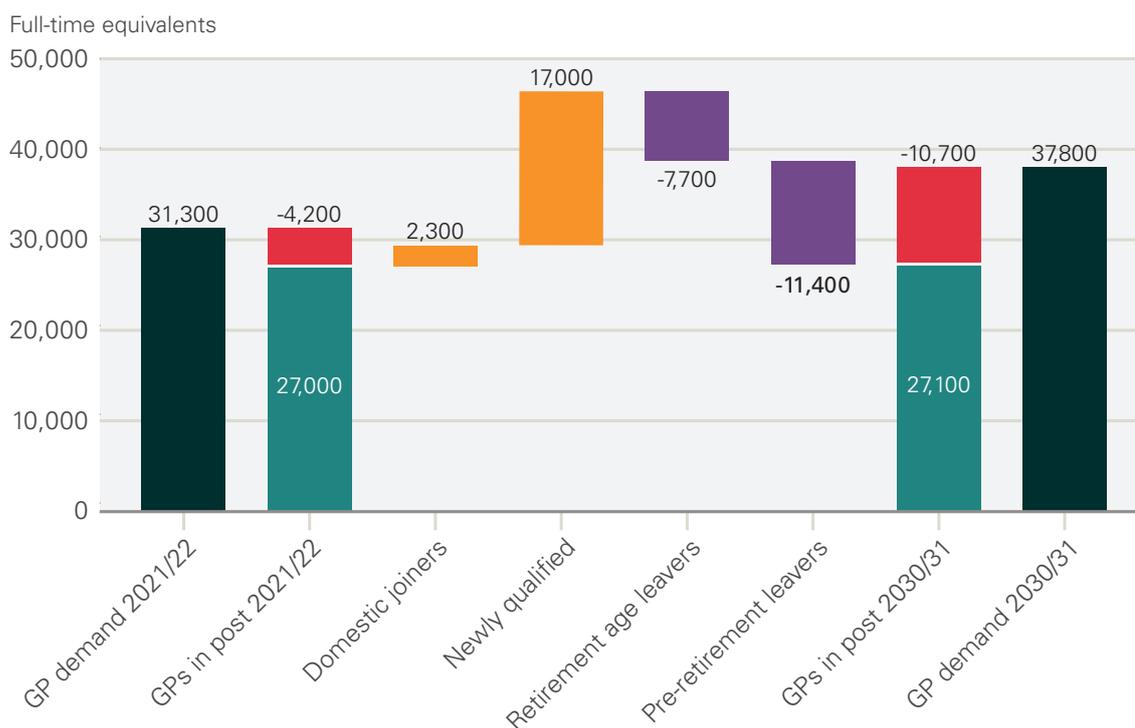
Full-time equivalents

Source: Authors' analysis based on data from NHS Digital and Health Education England.
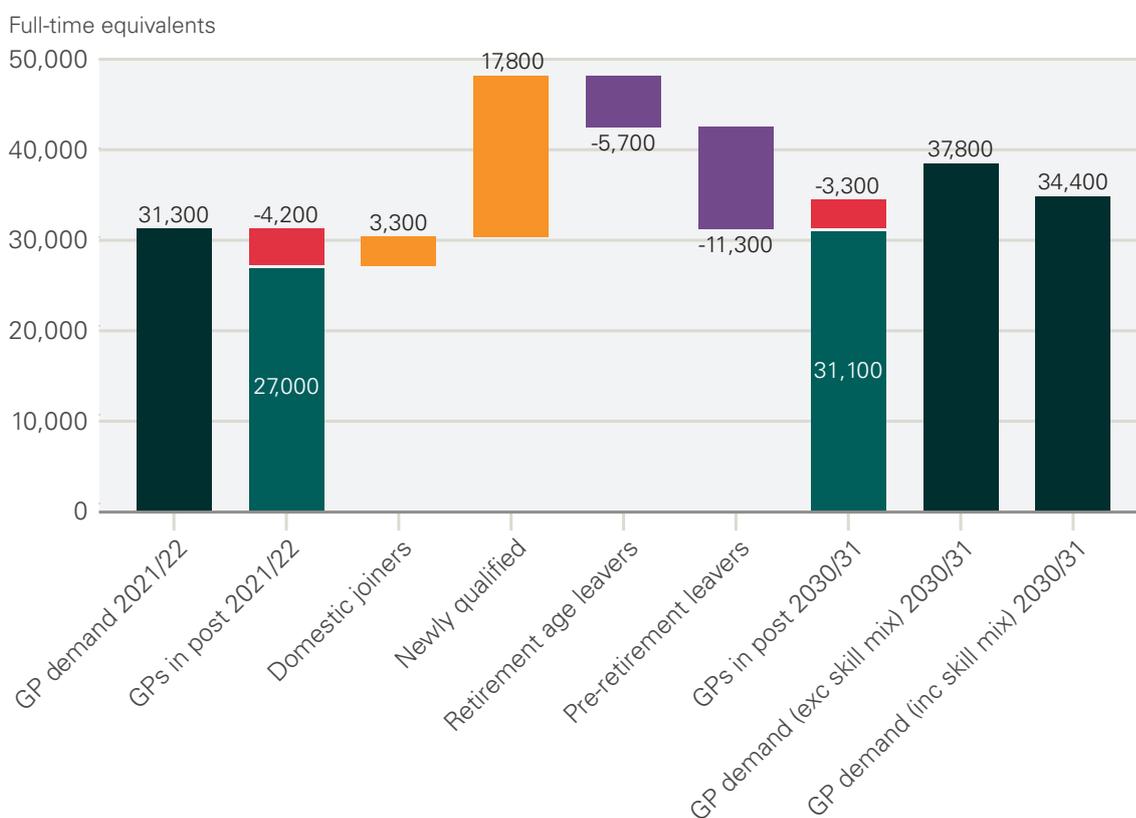
Note: The numbers in the chart are rounded and refer to FTE qualified permanent GPs (ie all GPs excluding GPs in training and locum GPs); 2021/22 GP supply data are for March 2022 (source: NHS Digital).

In our optimistic scenario, the GP shortfall in 2023/24 stands at around 8,300, a little higher to the corresponding figure in the current policy scenario (7,300). This reflects short-term increases in GP workloads and demand due to greater training and supervision being required for effective integration of newer DPC roles in practice teams (see Annex E). It also reflects the 'long lead' nature of the GP training pipeline. Domestic training is by far the most prominent recruitment channel, and it takes at least 9 to 10 years to train fully qualified GPs. Therefore, policy action and support for GP recruitment and retention can take a decade or more to make a dent in the existing FTE GP shortfall, particularly given the increasing trend in the proportion of GPs working part time (noted in section 2.4.1).

However, our optimistic scenario suggests that the resulting shortage of GPs can be substantially mitigated by the end of the decade, to a projected shortfall of around 3,300 FTE GPs by 2030/31, around 10% of projected demand (Figure 25). This projection assumes that policies targeting improved GP retention are developed and successfully implemented alongside measures already in place. It also assumes that newer roles are effectively integrated into general practice teams, such that GP workload is reduced. Further, we assume lower GP specialty training attrition rates, improved post-training workforce transition rates and higher labour market participation (in the form of an increased FTE-to-headcount ratio for new GP joiners), as specified in Annex F.

Our key assumption on the expansion in DPC staff numbers is that more multidisciplinary general practice teams will generate an overall reduction of around 9% in GP demand by 2030/31 (see Table 9). This assumption is underpinned by extensive stakeholder engagement. At the time of writing, there is a lack of evidence on the extent to which established and newer DPC roles can alleviate GP workload pressures in the medium term. Our projected shortfall of around 3,300 FTE GPs in the optimistic scenario is sensitive to the extent of this alleviation. For example, if the combined effect of increasingly multidisciplinary teams ends up lowering GP demand by an effective 18% (rather than 9%) by 2030/31, our projected shortfall of 3,300 FTE GPs could be fully bridged. Conversely, if the effective GP demand reduction ends up being lower than 9%, the projected GP shortfall will be higher.

Figure 25: GP demand and supply projections for England, 2021/22–2030/31: optimistic scenario

Full-time equivalents

Source: Authors' analysis based on data from NHS Digital and Health Education England.

Note: The numbers in the chart are rounded and refer to FTE qualified permanent GPs (ie all GPs excluding GPs in training and locum GPs); 2021/22 GP supply data are for March 2022 (source: NHS Digital); 'skill mix' refers to our assumptions on changes in the skill mix (in terms of expanded use of multidisciplinary teams in general practice), outlined in Table 9; the projected GP shortfall in 2030/31 is the approximate difference between the projected number of GPs in post in 2030/31 and projected GP demand after accounting for our assumptions around general practice teams becoming more multidisciplinary over time ('GP demand (inc. skill mix)').

Our pessimistic scenario highlights a worst case world in which the shortfall of around 4,200 FTE GPs in 2021/22 is projected to increase to around 9,700 by 2023/24 and further to around 20,400 – around half of projected demand – by 2030/31 (Figure 26). The doubling of the projected GP shortfall between 2023/24

and 2030/31 underscores how a lack of policy focus beyond 2023/24 coupled with worsening GP trainee attrition rates, workforce transition rates and increased leaver rates could lead to a sustained reduction in the supply of GPs over the decade to 2030/31.

The pessimistic scenario also envisages a worst case implementation of skill mix change. In this world, the ongoing move towards more multidisciplinary teams leads to GP demand in 2023/24 being 5% higher than in the current policy scenario (as in the optimistic scenario, but with the underlying reasoning being different as highlighted in Table 9), *without* any efficiency gains being realised over the rest of the decade (unlike in the optimistic scenario). This highlights the risks inherent in inadequate or no workforce planning beyond 2023/24. In such a case, poor supervision and integration of newer roles, and escalating workload pressures on GPs and practice nurses, could lead to a 'vicious cycle' of increased vacancy and staff turnover rates in general practice.

Our assumption around the pre-retirement age GP leaver rate increasing by 5 percentage points over this decade is rooted in growing concern around high numbers of GPs intending to cut back their hours or leave the profession altogether in the near future. As section 2.4.2 underlined, the pandemic contributed to increased workload and stress levels for a GP workforce that was already under considerable strain. While its full impact will take more time to discern, the emerging evidence points to the plausibility of our assumptions in this scenario.

Figure 26: GP demand and supply projections for England, 2021/22–2030/31: pessimistic scenario
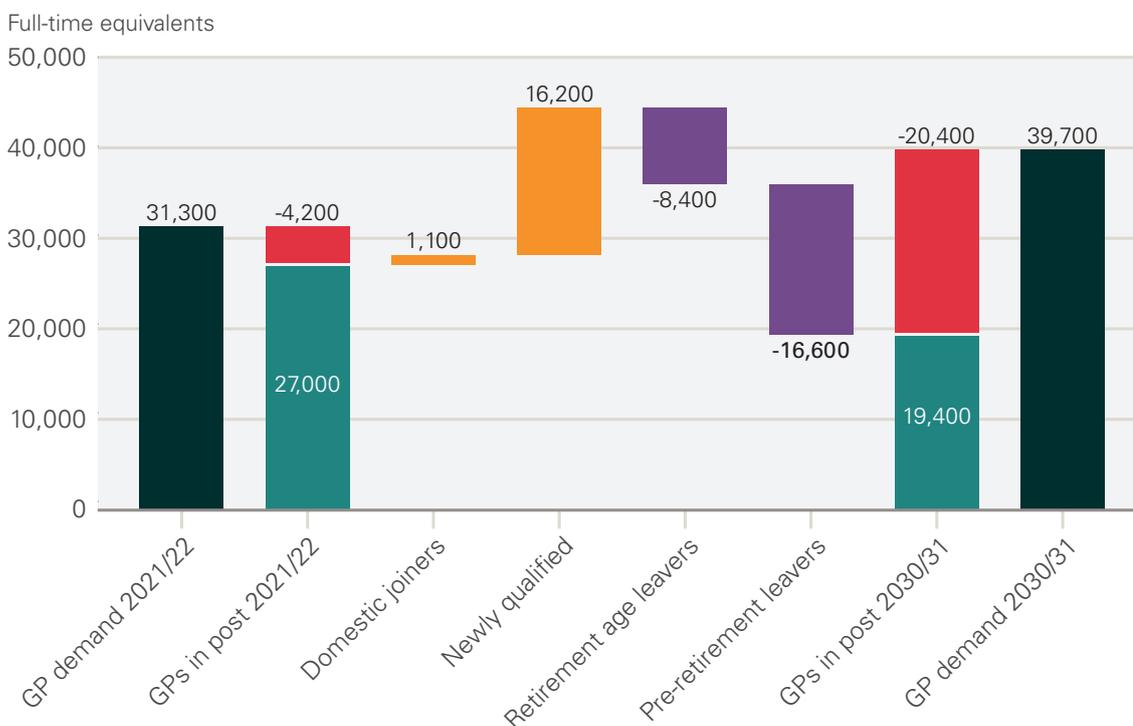
Full-time equivalents

Source: Authors' analysis based on data from NHS Digital and Health Education England.

Note: The numbers in the chart are rounded and refer to FTE qualified permanent GPs (ie all GPs excluding GPs in training and locum GPs); 2021/22 GP supply data are for March 2022 (source: NHS Digital).

Across all scenarios, our projections suggest the government's 6,000 GPs target for 2023/24 will not be met* and that the short- to medium-term outlook for GP supply is concerning. Our projections of the GP supply-demand shortfall are at the national level: some regions and local areas in England are likely to register greater shortfalls relative to the population than other areas. While our modelling of future general practice staff demand and supply does not currently yield sub-national level projections, further research in this area is crucial from an equity of access perspective.

5.3.2 Projections of nurse supply in general practice

Our projections of the future supply of nurses in general practice up to 2030/31 (Figure 27) paint a concerning picture of the sustainability of nurse supply in general practice over the coming decade. In the current policy scenario, the number of FTE nurses in general practice is projected to decline by around 0.6% a year over the decade to 2030/31, resulting in a shortfall of around 6,400 FTE general practice nurses by 2030/31 – over a quarter (29%) of projected general practice nurse demand. In the optimistic scenario, we project a slow increase in nurse supply in general practice from around 16,600 in 2021/22 to around 17,100 in 2030/31.

However, in the pessimistic scenario nurse supply in general practice is projected to decline by over a quarter (around 28%) to around 12,000 by 2030/31, resulting in a shortfall of around 10,100 FTE general practice nurses or close to half (46%) of projected general practice nurse demand. This is driven primarily by the current trends and our assumptions regarding increases in nurse leaver rates (section 5.2). The assumptions on the number of nurses in training and international nurse recruitment (discussed in section 4.2.1) apply to nurses in the NHS HCHS sector rather than general practice, as publicly available data point to general practice nurse numbers having been less responsive to these variables in recent years relative to HCHS nurse numbers.

In all scenarios, Figure 27 suggests a growing shortfall between the projected demand for nurses in general practice and the number of nurses available in the decade to 2030/31. As we discuss further in Chapter 6, policy urgently needs to address this gap. An important caveat to this analysis is that our projections do not account for potential changes in the skill mix within the general practice nurse workforce in the coming years. With the ARRS covering increased recruitment of nursing associates and trainee nursing associates through PCNs, it is possible that these nursing support roles could alleviate some of the workload pressures faced by practice nurses, advanced nurse practitioners and other senior nursing roles in general practice.

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*   In the current policy scenario, our projections suggest that the overall number of GPs might be around 3,000 higher in 2023/24 relative to 2018/19, but the number of qualified permanent GPs will have fallen, so any overall increase will be attributable to higher numbers of GP trainees and locums.

The evidence base is thin, making this area fertile territory for future research. Moreover, as we have highlighted in previous work,[6] the existing nursing associate and trainee nursing associate base in general practice is relatively small (NHS Digital data suggest that there were around 500 FTE staff in these two groups in December 2021)[56] and will be far outnumbered by registered nurse numbers in the medium term, even if we assume that they grow in line with *NHS Long Term Plan* targets.

Figure 27: Demand and supply projections for FTE nurses in general practice in England, 2021/22–2030/31

Full-time equivalents
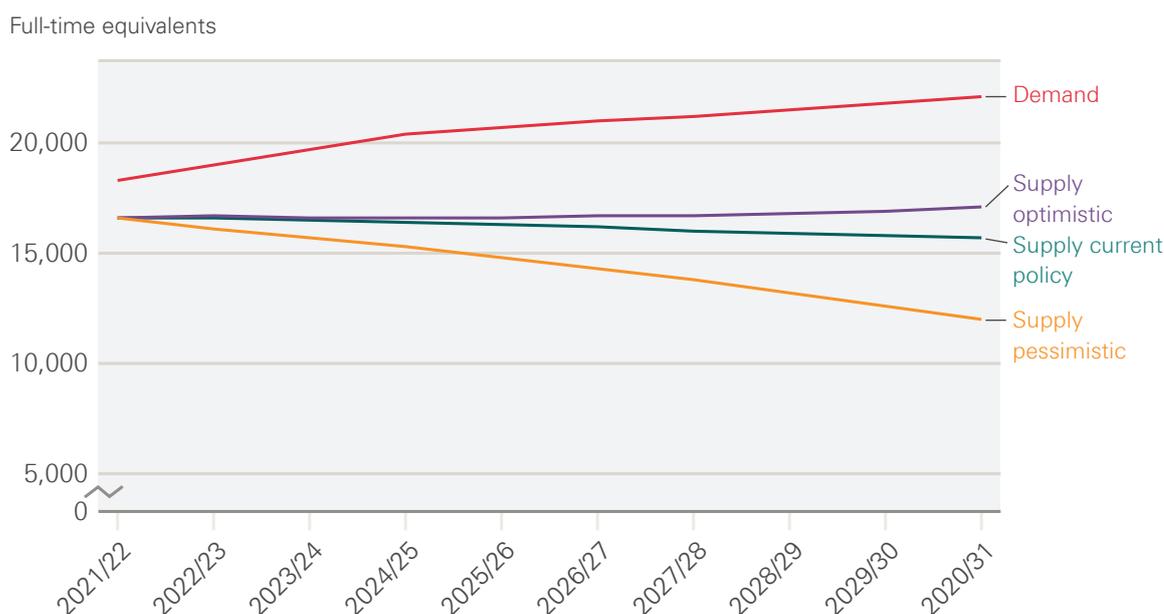
Source: Authors' analysis based on NHS Digital general practice workforce data and the REAL Centre nurse supply model (numbers are rounded).

Note: 2021/22 nurse supply data are for March 2022 (source: NHS Digital).

5.3.3 Projections of other DPC staff supply in general practice

We assume government's target of hiring 26,000 additional DPC staff in general practice by 2023/24 relative to 2018/19 is met in the current policy and optimistic scenarios. This implicitly assumes continued rapid expansion in recruitment to ARRS-funded roles over the next 2 years. Meeting the 26,000 FTE target calls for an annual growth rate of around 45% over the staff base in these roles in December 2021.[*]

Our projections for DPC workforce supply in general practice (for both the ARRS-funded and non-ARRS-funded roles) are presented in Figure 28. They highlight the inherent uncertainty in the continuing expansion of staff numbers in this group beyond 2023/24, rooted in the current lack of integrated workforce

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[*]   The Interim NHS People Plan projected that an additional 5,000 physiotherapists and 2,500 pharmacists would be needed in the NHS – with a focus on PCN teams – by 2023. But whether and how this aligns with or contributes to the 26,000 staff target for general practice is unclear.

planning across general practice, wider primary care and community care for the period beyond 2023/24. In the current policy scenario, our projections point to there being around 55,000 DPC staff working in general practice by 2030/31. This figure rises to around 72,000 in the optimistic scenario and falls to around 40,000 in the pessimistic scenario. As with our GP and general practice nurse supply projections, these numbers are at the national level. Regional or local shortfalls might exhibit substantial variation that are outside the scope of our modelling but call for increased policy attention in the future.[93]

Given the policy focus on DPC roles and the rapid recent expansion of this workforce, we do not model future demand for these roles as we do for GPs and nurses. As these roles are at the core of the ongoing policy prioritisation of multidisciplinary general practice teams, it is difficult to assess how the demand for DPC staff might change in the future, particularly considering the immense variety in the tasks different staff groups undertake. One way to analyse the increasing relevance of these roles is in terms of the changing general practice workforce skill mix embedded in our optimistic scenario, in which effective integration of older and newer DPC roles over the coming decade is instrumental in largely bridging the gap between GP supply and demand by 2030/31. Effectively, this implies that in the optimistic scenario, the increased recruitment of DPC staff helps to free up substantial GP capacity, to the order of around 3,400 qualified permanent FTE GPs by 2030/31 (approximately a tenth of the projected number of GPs in post in 2030/31).

Figure 28: Supply projections for DPC staff other than GPs and nurses in general practice in England, 2018/19–2030/31

1. All DPC staff other than GPs and nurses, 2021/22–2030/31

Full-time equivalents
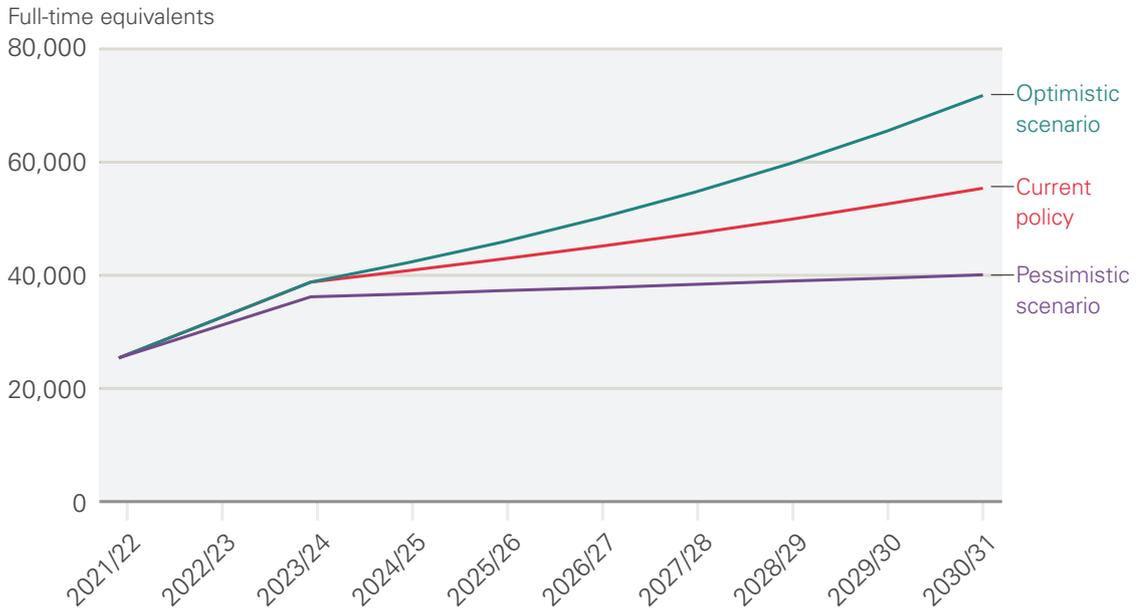
2. DPC staff recruited into roles covered by the ARRS: 2018/19–2030/31 (emphasising the government's 26,000 additional FTE target for 2023/24)

Full-time equivalents
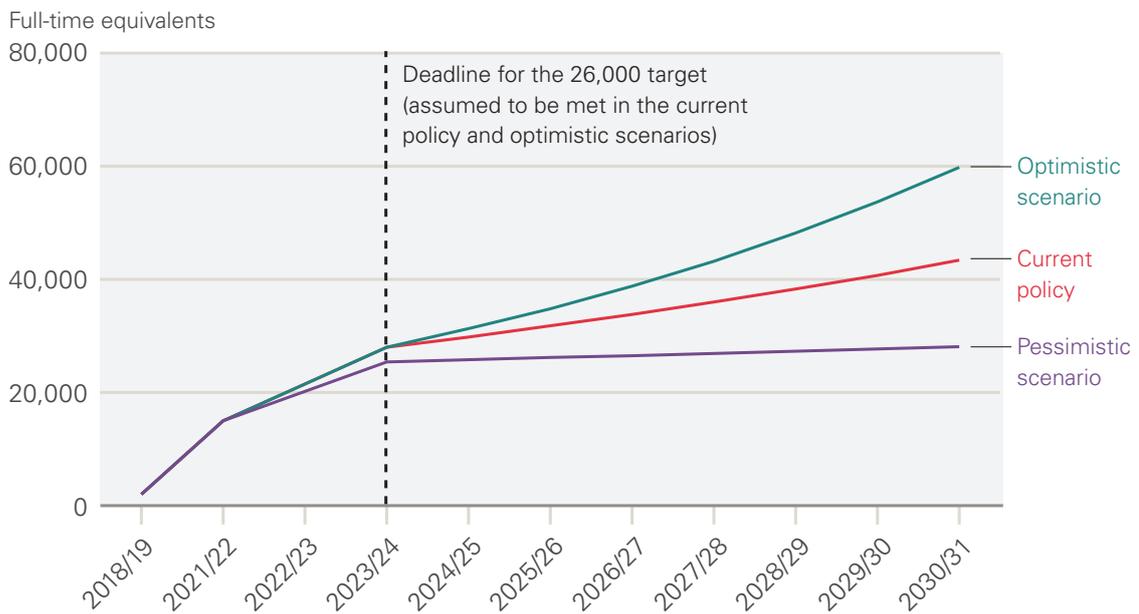
Source: Authors' analysis based on NHS Digital general practice workforce data (numbers are rounded).

Note: 2018/19 and 2021/22 DPC workforce supply data are for March 2019 and March 2022 (source: NHS Digital).

6. Implications

6.1 Nurse supply and demand

6.1.1 Will the 50,000 nurses target be met?

In March 2022, government specified that the 50,000 nurses target, initially set out in its 2019 manifesto, refers to increasing the number of FTE nurses working in the NHS HCHS and general practice in England by the end of 2023/24 (31 March 2024) relative to the 300,904 FTE nurses working in September 2019.[17] Therefore, the target means increasing this baseline number to at least 350,904 FTE by March 2024. By December 2021, NHS Digital data suggest there were an additional 27,003 FTE nurses in the HCHS and general practice, so over half the target had been met with around 27 months still to go.[17]

This suggests government is on track to meet the 50,000 target, made more feasible given recent sustained increases in international nurse recruitment. Substantial increases in the number of nurses newly registered with the NMC in 2020/21 and 2021/22[94] from outside the EU/EEA suggest that international nurse recruitment has made a quick recovery after COVID-19-related travel disruption in 2020/21,[95] and is now at higher than pre-pandemic levels.

Alongside these recent increases, however, there is substantial uncertainty around nurse retention. The government's 2022 update acknowledged retention is the 'most significant area of uncertainty' in delivering the target, driven by factors that make changes in overall leaver rates particularly difficult to predict.[17] This is all the more relevant given continuing uncertainty around whether and how the pandemic and the McCloud remedy* might affect leaver rates and retirement decisions.† When it comes to student nurse training, data are more readily available with the notable exception of student attrition numbers. But the lead times involved in nurse training (typically at least 3–4 years) make this an unviable lever for increasing nurse supply in the short term.

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*   The McCloud remedy is a ruling that will remove the age discrimination deemed to have been brought about in public service pension schemes, including the NHS Pension Scheme, on account of older members being allowed to remain in legacy schemes instead of being moved to the 2015 scheme when that was introduced. (www.nhsemployers.org/articles/mccloud-remedy).

†   A recent article points to new NHS modelling forecasting that the 50,000 target could be missed if NHS nurse leaver rates increase substantially in the next 2 years (www.independent.co.uk/news/health/nurses-nhs-boris-johnson-election-pledge-b2103364.html).

Therefore, although the government appears to be on track to meet the 50,000 nurses target, continuing to rely on sustained substantial increases in international nurse recruitment is a concern. Within the 'target sectors' of HCHS and general practice nursing, international nurse recruitment will largely be confined to the acute hospital sector, with community and general practice nursing generally having significantly lower numbers of international recruits because such nurses are less immediately available in other international markets. Further, a lack of specificity means the numerical target can be met without prioritising the sectors, specialties and geographies in greatest shortage. The target also does not address the substantial and growing nurse shortages in adult social care (see section 1.2 and annex D).

The demand for nurses is projected to grow at around 2.2% a year in the decade to 2030/31 (see section 3.2). There is considerable uncertainty around this estimate given the pandemic, the elective care backlog and potential changes in NHS day case trends and bed numbers. As we have highlighted in previous research, the lack of a link between the 50,000 target and any assessment of the demand for nurses or rapid increases in activity rates is a critical weakness of the target.[3]

6.1.2 Nurse supply in the longer term

The projections in Chapter 4 suggest that nurse supply can only close the gap with demand by 2030/31 in our optimistic scenario. Critically, this hinges on increases in future nurse supply through each of the major supply routes:

- Up to 2023/24, international recruitment will be the key policy lever for increases in nurse supply. For the longer term, however, it is critical that policymakers aim to reduce or taper reliance on international supply, focusing instead on more sustainable and robust solutions based on increased domestic supply.

- Beyond 2023/24, sustaining recent increases in the number of student nurses in training will be key to supporting the optimistic scenario supply trajectory. This requires policy support and sustained investment in university capacity and in clinical training placements, with increased clarity over annual planning and budgets.

- Through the decade, retaining existing nurses will continue to be important to achieve overall increases in FTE nurse numbers. This calls for an improved retention policy, including promoting better work-life balance, career progression, leadership and training. As we have highlighted in recent research, it should also involve a renewed focus on responsive and fully funded NHS nurses' pay determination and the total reward offer, including incentives for childcare and adult care provision.[96]

Further, our sector-specific analysis points to an urgent need for greater policy attention in the relatively neglected areas of nursing in general practice and adult social care. In all our scenarios, nurse supply over the decade to 2030/31 is

projected to fall well short of projected increases in demand in these sectors. This becomes even more concerning given the potential increases in unmet need from the pandemic.

6.2 General practice workforce supply and demand

6.2.1 Will the targets be met?

As with the 50,000 nurses target, the government's manifesto targets on general practice – to recruit 6,000 additional GPs and 26,000 DPC staff in general practice by 2023/24 – are 'top down' and poorly specified in terms of coverage. While it was initially unclear whether GP trainees were included in the 6,000 GPs target, recent updates[*] indicate the target includes GP trainees. Even so, in November 2021, the health secretary stated the target is unlikely to be met.[55]

As highlighted (see section 2.4.1), the growth in staff numbers in the targeted ARRS-funded roles between December 2019 and December 2021 has been rapid, exceeding the growth rates registered in the preceding 2015–2019 period. Even so, our projections suggest that there will need to be rapid growth in ARRS-funded staff numbers in 2022/23 and 2023/24 for the target to be met. Recent updates point to over half of the target having been achieved by March 2022.[58,†]

As the funding commitment is in place, we assume that the 26,000 target will be met in our current policy and optimistic scenarios. However, this supposes trained professionals will be available in sufficient numbers within the wider health care system for rapid increases in ARRS-funded staff numbers in general practice to continue in 2022/23 and 2023/24. Clarity on post-training pathways for these professionals and long-term planning targeted at increasing the numbers moving into general practice will be key. HEE's Roadmaps to Practice provide helpful direction,[97] but will need to be supplemented by regular monitoring of progress along the training and post-training pathways.

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[*]   In March 2022, for instance, the operational performance update to the NHS England and NHS Improvement board meetings held in common stated that there had been an increase of 1,483 FTE GPs between March 2019 and January 2022, citing that there were 36,009 FTE working GPs in January 2022 – a number that includes GPs in training. (See www.england.nhs.uk/wp-content/uploads/2022/03/BM2207Pu-operational-performance-update-march-2022.pdf.)

[†]   In March 2022, the operational performance update to the NHS England and NHS Improvement Board meetings held in common stated that over 16,000 FTE additional roles had been recruited towards the 26,000 target (relative to March 2019), but it did not provide detail on how this estimate was calculated. (www.england.nhs.uk/wp-content/uploads/2022/03/BM2207Pu-operational-performance-update-march-2022.pdf). Further, on 1 March 2022, NHS England and NHS Improvement published a letter to GP practices stating that on the basis of NHS Digital data and ARRS financial returns, they were confident regarding hitting intermediate targets of 15,500 FTE by 2021/22 and 21,000 FTE by 2022/23, but the methodology underlying this reasoning is unclear (www.england.nhs.uk/wp-content/uploads/2022/03/B1375_Letter-re-General-practice-contract-arrangements-in-2022-23_010322.pdf).

There are also broader issues with the 26,000 target. First, our analysis highlights that the target covers a wide spectrum of roles, with coverage of the ARRS having expanded over time to cover more DPC staff groups than initially envisaged. Second, the target does not appear to be linked to an assessment of national or sub-national level demand for primary care provision through general practice. The target also does not account for regional and local variation in the demand for and supply of specific DPC staff roles, likely to be substantial. This means that even if the target is met at the national level, it could leave a large number of areas with persisting shortfalls in key roles. This could exacerbate workload pressures if the available skill mix does not match local patient needs, potentially resulting in increased general practice staff turnover and lower FTE-to-headcount ratios in the medium to long term.

It is also vital to look beyond numbers. Core objectives of the policy push for more multidisciplinary general practice teams include alleviation of workload pressures on GPs and general practice nurses, better integration of primary care with secondary and community services, and improving the range and quality of care provided through general practice.[51] Recent research has raised concerns that ineffective implementation and integration of four key ARRS-funded roles in some general practice teams are linked to a lack of shared understanding about their purpose and potential contribution (see Annex E).[98]

The extent to which these objectives are achieved in the coming decade will depend to a great extent on whether skill mix change in general practice reduces the existing levels of workload and burnout faced by GPs and general practice nurses. As we emphasise, even in an optimistic scenario, this could involve 'teething troubles' generated by the inevitable challenges that more multi-professional teams will bring. In the short term, we account for these challenges by assuming that the increased need for management and supervision of new staff roles in general practice leads to GP demand in our optimistic scenario being 5% higher in 2023/24 than in the current policy scenario. This is also the case in our pessimistic scenario, which underlines the increased risks posed by the pandemic for GP resilience and leaver rates.

6.2.2 General practice workforce supply in the longer term

Our projections highlight much uncertainty around growth in the general practice workforce beyond 2023/24. For general practice nurses, the nurse supply model paints a concerning picture about future supply growth across all scenarios (see 5.3.2). For GPs and DPC staff in general practice other than nurses, we are currently unable to model future supply through a similarly sophisticated model that accounts for feedback loops and linkages between the key drivers of changes in recruitment and retention. So, for these two staff groups, we use publicly available data on growth in staff numbers and, in the case of GPs, changes in the numbers in training.

Our analysis highlights a glaring lack of publicly available data on key components of the GP training pathway. In particular, there is a lack of data on what proportion of medical trainees who complete the 2-year foundation programme every year move into general practice specialty training over time and the number of international medical graduates taking up specialty training places every year. Further, we have not been able to find reliable publicly available time series data on GP specialty training attrition rates, workforce joiner rates following the completion of GP specialty training and the FTE-to-headcount ratio of newly qualified joiners. This makes it difficult to arrive at well-founded projections of future GP supply. Future research would benefit from these data being compiled and being made publicly available every year.

The supply of GPs

In the current policy scenario, our projections underline that a substantial shortage of GPs is likely through to 2030/31. Given the long lead times involved in GP training, recent increases in GP specialty trainee numbers might only lead to increases in FTE GP supply by the end of the decade. International GP recruitment is a considerably less feasible policy lever than international nurse recruitment. Coupled with the ongoing trend of increases in part-time working among GPs, this underlines the risk that a failure to recruit sufficient GPs will drive further increases in GP workload and burnout in the next 5 to 6 years. These concerns are only likely to have been exacerbated by the pandemic and the negative press that GPs have been subjected to in recent months.

Even in our optimistic scenario, we project a shortage of around 8,300 FTE GPs in England in 2023/24. This shortfall can be contained to around 3,300 GPs in the optimistic scenario by 2030/31, but this assumes a reduction in the GP leaver rate, success in integrating newer roles in multidisciplinary general practice teams, reduced GP trainee attrition rates and improved workforce joiner rates following training. It also implies the stock of qualified permanent GPs will need to grow by an annual average of around 1.6% between 2021/22 and 2030/31. This compares with virtually zero growth in this stock between September 2019 and September 2021, and a small decline in the number of qualified permanent GPs between September 2017 and September 2019.

Policymakers urgently need to take steps to address these challenges. The Health and Social Care Committee inquiry into the future of general practice is a start.[99] And a number of policy initiatives are underway to support GP recruitment and retention, including the targeted enhanced recruitment scheme and the GP retention scheme.[100] These measures should be retained and adequately funded over the coming years to boost GP numbers. Further measures will also be needed. Their development must be informed by research helping to clarify what would encourage GPs to stay in post, or attract trainee doctors to the profession.

Increases in the number of GPs at a national level must be accompanied by consideration of how they are distributed. Some areas of the country – especially socioeconomically deprived areas – are more under-doctored than others.[101] Health Foundation research points to the need for an independent review of general practice funding allocations and better central supervision of GP distribution in England to avoid perpetuating existing inequities in access to general practice.[102]

The supply of staff other than GPs

As highlighted, the policy initiatives currently in place to boost nurse recruitment and retention in general practice were all drawn up prior to the pandemic. Our projections raise questions around the sustainability of future nurse supply in general practice under all scenarios. In the immediate aftermath of the pandemic, it will be crucial for policymakers to support and prioritise sustained improvements in general practice nurse recruitment and retention.

Another key long-term workforce planning challenge highlighted in our projections is the supply of staff in ARRS-funded roles beyond 2023/24. The ARRS and PCN policy measures have led to welcome increases in DPC staff employment in general practice in the past 2 years. For these increases to be sustained beyond 2023/24, successor policies to the ARRS and PCN initiatives will be crucial. Importantly, these policies should be grounded in a comprehensive workforce planning approach as opposed to top-down targets. The Fuller stocktake report has highlighted the relevance of good coordination between PCNs and integrated care systems (ICSs) and innovative employment models to promote effective system-wide change.[93]

With the DPC staff group covering an increasing spectrum of roles, it is vital that policy promotes their effective integration over time. If ARRS-funded roles are to alleviate workload pressures on GPs and general practice nurses, and if the benefits of these roles are to be realised beyond 2023/24, there are several key considerations for policymakers. First, it will be vital to account for the diversity inherent in these roles, including variation in their ability to supervise multidisciplinary teams. Second, it is important to consider the impact of regulatory changes (eg physician associates are in the process of being regulated by the GMC in the next 2 years,[103] which will lead to changes in their ability to make independent prescriptions).

Practices and PCNs also need support to manage organisational and team working changes as they move to becoming more multidisciplinary. Alongside effective leadership and supervision, clarity should be provided regarding non-clinical tasks that staff in different roles are expected to take up, and the support they can expect to receive from administrative staff. Future advances in automation and digitalisation could have a bearing on this transition.

In the optimistic scenario, the expansion of DPC staff numbers through PCNs would lead to lower GP demand by 9% by 2030/31 (relative to the current policy scenario) to close the GP supply-demand gap. For this to be achieved, effective

supervision and integration of newer DPC roles will be key in the period between 2023/24 and 2030/31. Our pessimistic scenario implies a world where this is not achieved: a combination of higher demand for GP time relative to the other two scenarios and declining numbers of FTE qualified permanent GPs results in the GP shortfall expanding to 20,400 FTE by the end of the decade. This represents a worst case in which the ongoing policy push towards multidisciplinary general practice teams falters after 2023/24, with newer ARRS-funded recruits not being effectively embedded in their teams. Over time, this could lead to increased staff turnover and vacancy rates for these roles.

Policy enabling both the continued expansion in DPC staff numbers in general practice and their effective integration in teams should go hand in hand with addressing inequities in staff availability across regions and local areas on a system-wide basis. Realising sustained increases in the number of students training in general practice nursing and DPC courses will also matter. Policy can support this through increased investment and media campaigns highlighting the vital contribution of these staff groups.

6.3 Implications for workforce planning

Five core themes emerge from this report. While they are unlikely to be considered 'new' in isolation, our research emphasises what should be at the forefront of NHS workforce planning.

1. First, there is no alternative to **comprehensive long-term workforce planning** if the workforce shortages that have long bedevilled the NHS are to be mitigated. Without a long-term vision, it is likely that existing workforce gaps will widen, ultimately imperilling the quality and sustainability of NHS health care delivery.

2. Second, workforce strategies should carefully account for **variation in workforce supply and demand across geographies and sectors**. A system-wide approach is vital to obviate the prospect of 'whack-a-mole' siloed models targeting the elimination of workforce gaps in specific settings only at the expense of others.

3. Third, workforce policies must be **fully costed and funded** if they are to be effectively implemented. In the medium term, the successful implementation of a workforce strategy will require clarity on the funding available to relevant stakeholders. This is all the more relevant given the uncertainties inherent in funding needs in the latter half of the coming decade, particularly in the immediate aftermath of the pandemic.[12]

4. Fourth, **joined-up, holistic policymaking** that accounts for the bigger picture from alternative perspectives – rooted in a systemic understanding of NHS staff numbers, the drivers of recruitment and retention, funding and activity pressures – is much needed.

5. Finally, the **gaps in accessible NHS workforce data** highlighted in this report need to be addressed. Gaps that stand out as being particularly worthy of consideration include publicly available data on student nurse standardised attrition rates, nursing staff turnover and changes in key demographic and workforce characteristics of the nurse labour pool in England over time. Regarding GPs, there is a worrying lack of accessible data on key elements of the training pathway that makes it difficult to analyse changes in workforce joiner rates. For nurses and other DPC staff in general practice, it is difficult to arrive at well-reasoned estimates of future workforce supply as only high-level data appear to be available. These data gaps are a major hurdle to effective longer term workforce planning.

6.4 Wider implications

Overall, the scale of the NHS workforce challenge over the coming decade is substantial. Addressing it will require sustained, system-wide progress. With conservative assumptions of reductions in average staff time per hospital patient, we project that workforce demand in the HCHS and general practice will increase by around 314,000 FTE over and above existing vacancies by 2030/31 – around 2.2% a year – if the NHS is to maintain 2018/19 rates of care.

Accounting for long-term trend growth and current policies, overall NHS workforce supply is projected to increase by around 2% a year between 2021/22 and 2030/31, over three times higher than the annual growth rate in the 2010–2019 period. To achieve this, government will need to use the full range of policy levers at its disposal through a comprehensive, fully funded workforce strategy. A long-term focus on sustained improvements in recruitment, retention and the numbers in training will be vital. Even if this is achieved, we project an NHS workforce supply-demand gap of around 160,000 FTE by 2030/31, around 9% of projected demand (relative to an existing gap of around 103,000 FTE amounting to around 7% of estimated demand in 2021/22).

Our in-depth analysis of registered nurses and patient care staff in general practice highlights two areas where workforce shortages are particularly severe. Accounting for current trends and policies, while the government may be on track to meet its target of 50,000 more registered FTE NHS nurses by 2023/24, this relies heavily on continuing strong increases in international nurse recruitment. Meeting the target would still leave the NHS falling short by around 38,000 FTE HCHS and general practice nurses relative to projected demand in 2023/24. Notwithstanding recent increases in the number of nurses in training, continuing with current policies is projected to result in a persisting NHS nurse shortfall of around 36,700 FTE (across the HCHS and general practice) by 2030/31.

A nurse staffing shortfall is not an inevitable feature of the NHS workforce – policy choices matter. Our optimistic scenario suggests that there is potential for nurse supply to match increases in demand in the HCHS by 2030/31. This accounts for

the strong increasing trend in international nurse recruitment, and would require sustained improvements in nurse retention and the numbers in training, as well as lower student nurse attrition rates. It will also require a comprehensive long-term focus.

Graver concerns surround the general practice workforce. Across all of our scenarios, the government is projected to fall short of its target of 6,000 additional GPs by 2023/24. In no scenario do we project GP and general practice nurse supply increasing to meet rising demand even by 2030/31. In our current policy scenario, the NHS faces a shortfall of around 7,300 FTE GPs in 2023/24 (over a fifth – around 22% – of the projected number of GPs needed in 2023/24). By the end of the decade, this shortfall is projected to increase to around 10,700 FTE, over a quarter (around 28) of the projected demand for GPs. Our pessimistic scenario, which emphasises the risks inherent in worsening GP retention rates and ineffective integration of newer DPC roles in practice teams, projects a more glaring GP shortfall of around 20,400 FTE by 2030/31, around half of the projected demand for GPs. Our projections point to comparably sobering supply-demand shortfalls in FTE general practice nurse supply by 2030/31 (around 29% and 46% of the projected demand for general practice nurses in the current policy scenario and the pessimistic scenario). With general practice being indispensable to NHS health care provision, this raises serious questions around the future quality of care, patient safety and – as we have pointed to in other research – equitable access to primary care.

Further, driven by PCN expansion and ARRS funding underpinned by *NHS Long Term Plan* commitments, recruitment to DPC roles in general practice has expanded rapidly since the end of 2019. The government committed to increasing staff numbers in a wide spectrum of these roles by 26,000 FTE by 2023/24. While available data point to substantial progress towards this target, our projections suggest that continuing rapid increases will be required for the target to be met.

Whether practices and PCNs can effectively harness the rapidly evolving changes in general practice team composition will likely to be a key determinant of the sustainability of future primary care provision. While the integration of newer DPC roles in multidisciplinary teams is likely to have led to increased short-term pressures, in the longer term it holds much promise. Our optimistic scenario projects a GP shortfall of around 3,300 FTE after assuming that successful integration of newer DPC roles helps lower GP demand by 9% by 2030/31. In a best case, if the reduction in GP demand is doubled, GP supply could meet projected increases in demand. Conversely, a lack of longer term planning and ineffective integration of newer roles translates into a higher projected GP shortfall. Again, the end result will be determined in no small part by policy choices around staff recruitment, retention, training, funding and equity of access in general practice.

While the in-depth projections in this report have focused on registered nurses and patient care staff in general practice, it is vital to acknowledge the commitment and grit displayed by the entirety of the NHS workforce. Having strained every sinew to combat the pandemic, NHS and adult social care staff will continue to play an

indispensable role in the recovery. But with workload pressures showing no signs of easing – and sharp increases in inflation and living costs dominating the wider economic headlines in 2022 – a comprehensive, fully funded workforce strategy has never seemed more urgent or relevant.

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About the Health Foundation

The Health Foundation is an independent charity committed to bringing about better health and health care for people in the UK.

Our aim is a healthier population, supported by high quality health care that can be equitably accessed. We learn what works to make people's lives healthier and improve the health care system. From giving grants to those working at the front line to carrying out research and policy analysis, we shine a light on how to make successful change happen.

We make links between the knowledge we gain from working with those delivering health and health care and our research and analysis. Our aspiration is to create a virtuous circle, using what we know works on the ground to inform effective policymaking and vice versa.

We believe good health and health care are key to a flourishing society. Through sharing what we learn, collaborating with others and building people's skills and knowledge, we aim to make a difference and contribute to a healthier population.