



¹ THIS Institute, Cambridge, UK

² University of Cambridge, Cambridge, UK

³ University Hospital of Wales and Cardiff University, Cardiff, UK

⁴ Curtin University, Australia

⁵ The BMJ

⁶ University Hospitals Birmingham and University of Warwick, UK

Correspondence to: M Dixon-Woods
mary.dixon-woods@thisinstitute.cam.ac.uk

Cite this as: *BMJ* 2024;384:e079474

<http://dx.doi.org/10.1136/bmj-2024-079474>

Published: 27 March 2024

THE BMJ COMMISSION ON THE FUTURE OF THE NHS

The future of the NHS depends on its workforce

The future of the NHS depends on the people who work in it, so workforce stewardship should be a key priority

Mary Dixon-Woods,¹ Charlotte Summers,² Matt Morgan,^{3,4,5} Kiran Patel⁶

Achieving a high quality, sustainable NHS is currently challenged by major workforce problems. Staff are the most significant element of NHS expenditure¹ and its most important asset in providing care for NHS patients, but stewardship of the workforce is not optimised at policy or service level. Based on knowledge of the field, the literature, and listening to patients and staff, we identify three key interlinked areas in which action is urgently needed: configuring the workforce, improving conditions and working environments, and enhancing career and training pathways. We propose what might be done to tackle the current challenges, emphasising that workforce stewardship needs to be highly intentional about diversity, inclusion, and equity and needs to be done collaboratively with staff, patients, and the public.

Configuring the workforce for the future of the NHS

Staff shortages

The future of the NHS depends on having the right numbers of staff in the right roles, at the right times, and in the right locations. At present, the NHS simply does not have enough staff to deliver on its goals and commitments: it has fewer doctors, nurses, and managers than peer countries. By June 2023, there were over 125 500 vacancies in hospital and community health services in England.² Over 1 in 10 nursing posts were unfilled, with mental health and community nursing especially affected.² Although the overall number of doctors in hospital and community services has increased to 134 000, representing an additional 39 000 medical staff since 2010,² the NHS is currently short of nearly 11 000 doctors (a 7.2% vacancy rate). The vacancy rate in clinical professional roles is compounded by difficulties in recruiting and retaining high quality staff in other roles, including administrative, managerial, scientific, and technical staff, as well as estates and ancillary staff. These groups make up nearly half of the workforce and are essential to the NHS but receive much less recognition than their clinical counterparts. Despite the essential nature of their work, some are disparaged in policy and media discourses as somehow not “frontline.”

Staff shortages directly affect quality and safety of care, patient experience, and staff experience of work.³ Less than a third (32.4%) of respondents to the most recent (2023) NHS staff survey said that there were enough staff at their organisation for them to do their job properly.⁴ The unequal distribution of vacancies across geographical locations contributes

to inequalities, leaving some areas, including those most disadvantaged, under served, affirming the persistence of the inverse care law.⁵ The strategy of shoring up workforce shortages through overseas recruitment is unsustainable, especially as attention is drawn to its moral and ethical problems. So too is the increasing reliance on temporary staff, which is not only expensive—the annual cost of using locum, agency, and bank staff in the English NHS rose to £10.4bn in 2023⁶—but also introduces other risks,⁷ such as those linked to lack of familiarity with local policies and environments and disruption of team bonds, and might not be positive for patient experience or outcomes.⁸

The *NHS Long Term Workforce Plan*,⁹ published in June 2023, offers some welcome commitments to workforce planning and development. But it does not fully tackle the range of problems—including, for example, those relating to the capacity of educational institutions, the availability of suitably trained educators, quality of training, availability of clinical and educational placements, research leadership, and training and support. It also does not adequately tackle the important challenges of retaining and developing existing staff. Its implementation (including scale and pace) is currently uncertain, as is its economic viability.¹⁰ Given that the plan is intended to represent a fundamental reshaping of the NHS, its workforce, and its operations, it must be subject to sound evaluation to assess its risks and opportunities and benefits and harms.

Role diversification

Role diversification has become an increasingly prominent feature of the NHS in recent years, with primary care providing an important example. Although the number of fully qualified and permanent full time equivalent (FTE) general practitioners is declining and stood at 27 487 in December 2023,¹¹ the number of FTE staff in primary care who provide direct patient care but are not GPs—such as nurses, paramedics, social prescribers, and physician associates—increased by 34 380 between March 2019 and September 2023.¹² The number of staff providing direct patient care now stands at 45 701, with the recent increases largely driven by the Additional Roles Reimbursement Scheme.¹²

Some roles, such as advanced nurse practitioners, have already been operating successfully as key members of multiprofessional teams in primary, secondary, and community care for many years. Some

new roles are faster and less expensive to train than others; physician associates, for example, take a two year masters or postgraduate diploma, so they can enter the workforce rapidly. In principle, new and innovative professional roles might add value to teams. But some of these roles, particularly those that take on activities previously undertaken by other professional groups, have also created new challenges and risks associated with like-for-unlike substitution. The overall effects on patient safety remain largely unevaluated, and much of the available evidence, for example in nursing, already indicates that substituting less qualified staff for registered nurses is associated with worse outcomes and risks.¹³ Major concern has also been raised about the effect of new roles on the training opportunities available to other clinical staff.

Also unclear is whether increased role diversification will deliver all the hoped for benefits. In general practice, for example, the increased diversity of roles adds complexity: it requires sound processes for matching patients to the most appropriate professional and might also involve reassuring patients of the equivalency of care, create the potential for duplication and inefficiencies, and, perversely, may increase GP workload through the extra coordination and supervision burden.¹⁴⁻¹⁶ It is now clear that, for new roles, issues such as team and task design; scope and boundaries of practice; effects on current roles and grading of other team members; and governance and quality assurance all require substantially more consideration and consultation, including with patients and the public, than they have so far received.

Careful planning, monitoring, and a research and evaluation programme are needed to more effectively plan and manage new roles, ensure clear scope of role, carry out work system design combined with safety assessments to clarify which tasks can be safely assigned to whom, design and implement appropriate regulation, and safeguard training and development opportunities across different roles. At the same time, hard policy decisions might need to be made about what can reasonably be offered to the public based on the resources available to the NHS compared with other public sector priorities, including those that are related to health such as housing and environment.

New technologies

Configuring the workforce for the future of the NHS is, of course, not just a matter of tackling vacancies. It also requires thinking about the work to be done and how it can be undertaken effectively and efficiently. The dynamic and often rapidly shifting nature of scientific developments, demographics, service innovation, and technology, for example, must be taken into account. Staff take a long time to train and reach peak competence, but the work they need to do might change more rapidly. New technologies, including artificial intelligence, remote care, digital health, and genomics based medicine, might be rich with opportunity but are also highly disruptive. As these innovations penetrate more fully into healthcare, agility and responsiveness will be needed in planning not just for roles but for skills and for how the design of work systems and roles can evolve in both patient centred and staff centred ways. This is likely to require far more collaborative and co-design techniques than the NHS is used to—for example to ensure that “non-technical” skills, operational systems, training, and communication and decision making with patients are prioritised¹⁷ as key elements of technology deployment.

More generally, workforce planning and new roles need to be treated as major, novel interventions that require consultation and rigorous design to ensure that they are specified, evaluated, managed, and regulated appropriately and rigorously, with clarity about

boundaries with existing roles, and adequate consideration of unintended consequences and risks of deepening inequities.

Improving conditions

Satisfaction and value

Pay is an important source of dissatisfaction for NHS staff, with less than a third (31.2%) of respondents to the 2023 NHS staff survey saying that they were satisfied with their pay.⁴ The survey shows that pay satisfaction remains about seven percentage points below pre-pandemic levels (2019). Among medical and dental staff, satisfaction with pay is now 23 percentage points lower than in 2020, at 32%.⁴ Pay dissatisfaction is, of course, a major factor in current industrial action.

Despite its importance, pay is only one of several factors that influence staff experience.¹⁸ A sense that NHS systems do not always seem to value people as people but instead as resources to sweat is deeply implicated in issues relating to job satisfaction and retention.¹⁸ A 2021 survey of nearly 5000 staff found that 47.5% of staff felt their work was undervalued by the government, 20.6% felt undervalued by their employer, and 17.7% by the public.¹⁹ For some, working for the NHS might feel exploitative at times; only 45% of staff report that they are satisfied with the extent to which their organisations value their work.⁴

Working conditions

Linked to this, working conditions in the NHS are a major source of concern, with 41.7% of staff reporting feeling unwell as a result of work related stress in the past 12 months.²⁰ Workload pressures are often overwhelming. Many staff feel overstretched, demoralised, or burnt out. A majority (71%) of GPs, for example, report that their job is “extremely” or “very” stressful.²¹ Staff increasingly experience moral injury linked to the inability to provide the care they think they should be able to give²²; the sense of letting patients down is highly damaging for people’s experience of work.²³ Workload stress is compounded by the highly complex and demanding nature of the institutional and regulatory environment of the NHS generally,²⁴ which means that services, and the staff who work in them, might end up being answerable to a large number of different bodies and agencies whose rules, principles, and procedures might conflict or fail to cohere, adding to the workload. Inspections and other regulatory actions that result in unfavourable outcomes might be especially challenging for staff, with effects including fear, stigma, and shame.²⁵

Practical challenges are highly consequential for people’s ability to participate in the workforce and for their experience of work. NHS staff are often expected to work unsocial hours without support for transport and childcare, with the mismatch between housing costs and NHS salaries compounding these problems. Despite NHS Employers guidance,²⁶ the basic needs of staff are frequently poorly met,²⁷ with routine workplace facilities often lacking adequate toilets, fridges, chairs, lockers, and access to food and water, and staff reporting that they feel they cannot take breaks.²⁸ People’s experiences of starting new jobs are often poor, with fundamental problems such as onboarding—setting up identity badges, IT accounts, and permissions—often taking far too long. Basic administrative infrastructure to support staff is often lacking and has huge effects. Payroll errors, for example, can compound low pay and are corrected very slowly. By contrast, Australia, for example, has fortnightly pay cycles.

High stress environments

People in the NHS frequently have to work in highly stressful, demanding settings, while using poorly optimised work systems.²⁹ Healthcare professionals often spend a substantial proportion of their time doing tasks that take them away from doing the work that they're qualified for, which indicates a toleration of suboptimal use of the workforce and corresponding waste. Daily work is often frustrating: only 58.5% of staff say they have adequate materials, supplies, and equipment to do their work.⁴ Operational failures—ranging from poorly functioning IT systems to obscure referral pathways—are pervasive, causing frustration and damaging the daily experience of work.³⁰ That these challenges are also deeply problematic for patients too only adds to the sense of professional frustration, yet only 55.9% of staff feel able to make improvements in their area of work.⁴

Many of these issues can be tackled through better operational management and systems improvement, with knock-on positive effects not just for staff satisfaction but for productivity—as demonstrated by work in other sectors, including manufacturing.³¹ But better operational management will not occur simply by wishing for it or denigrating management as pen pushing bureaucracy.³² It will require recognition that unglamorous, mundane problems really matter and a corresponding policy commitment to building up effective management functions in the NHS using best practices at all levels.

Workplace behaviours

Behaviours in the workplace—encompassing the behaviours of colleagues, patients, relatives, and the public—are a major concern for the NHS workforce. Some workplace cultures in the NHS are highly adverse, leading to poor experiences of work, mental health difficulties, and consequent negative effects on patient safety and quality, including those that erupt into organisational crises.³³ Some staff, especially those who are minoritised, are particularly at risk of experiencing poor behaviours and culture, to the extent that the NHS has been described as diverse but not inclusive.³⁴ Although around a quarter of NHS staff are from ethnic minority backgrounds, they are less likely to progress to senior and leadership roles, for example.³⁴ Reported rates of bullying and disrespect, harassment, including sexual abuse and worse, and racism and discrimination, are alarmingly high. UK REACH (a research study into ethnicity and covid-19 diagnosis and outcomes in healthcare workers) found that around a fifth (21.2%) of staff surveyed between October and December 2021 reported that they had experienced discrimination in the previous six months, either from patients, colleagues, or both, but only half of those who had experienced harassment, bullying, or abuse said that they or a colleague had reported it.¹⁹

NHS organisations continue to show major weaknesses in tackling these problems. The NHS People Plan is clear that everyone should benefit from effective management,³⁵ but the realities are often very far from this aspiration. Line managers are often under-resourced and poorly trained and supported for the roles that they are asked to take on—frequently on top of other duties.³⁶ Efforts to improve employee voice (speaking up and speaking out) remain highly variable in implementation and effectiveness,³⁷ to the extent that lack of psychological safety³⁸ remains a persistent problem in the NHS. Less than two thirds of staff (62.3%) feel safe to speak up about anything that concerns them, and only half (50%) are confident that their organisation would deal with their concern.⁴ Interventions are now becoming available to tackle unprofessional³⁹ or transgressive behaviours,⁴⁰ and priority should be given to their implementation and evaluation.

A major challenge is that human resource (HR) services in the NHS are not always fit for the challenges they have to deal with. HR departments vary widely in the quality and practice of local procedures for grievances, disciplinary processes, and whistleblowing.⁴¹ They are frequently characterised by an adversarial approach focused on organisational risk mitigation, often linked to avoiding expensive litigation processes with uncertain outcomes. Further problems arise because the seam with professional regulators is not always neatly stitched, causing confusion about which problems should be dealt with by employers and which by regulators.³³ Loss of confidence in the transparency, consistency, and fairness of professional regulatory practices and decisions is now evident, not least because of the risk of death by suicide associated with a regulatory referral. There is particular disquiet about the disproportionate rates of regulatory referral of professionals from ethnic minority backgrounds and those trained outside the UK.⁴²

Clearer, collaboratively built standards and the right support would be very valuable here. But also important is tackling the wider legal environment for employment practices, which is likely to be implicated in the emphasis on procedural compliance seen in NHS organisations,⁴¹ and neither promotes positive workplace relationships nor is well suited to the specifics of healthcare environments.

Enhancing career and professional development

Professional development and career progression are essential both to retaining staff⁴³ and to ensuring that their competencies are fit for purpose. Education and training capacity is needed for all staff groups to support selection, supervision, assessment, and development and maintenance of the optimum skills and behaviours. This is expensive, and prone to cuts or to being badly implemented—for example, through poorly designed e-learning modules that staff are forced to do in their own time. More effective approaches, such as simulation and skilled debriefing,⁴⁴ are underused.

The current unprecedented level of attrition from professional training pathways, including in medicine, is an increasingly important major threat to the future of the NHS. The reasons are multiple, but for doctors in specialty training, aside from the prominent issues of pay restoration and student debt, they include bureaucratised, rigid training programmes characterised by “portfolio blight”—burdensome, poorly designed, and inflexible requirements for documentation. Doctors in training are among the groups especially affected by the practical challenges mentioned earlier, including bad rota systems and costs and inequities associated with training requirements.⁴⁵ Because of the way training is organised through rotations, this group is especially vulnerable to experiencing transactional, unsatisfying relationships with organisations and to disruptions of their personal lives that are difficult to manage. These include limited or absent support for transport and childcare and rota scheduling that does not accommodate planning for family events. Negative experiences of training are amplified by failures to offer a sense of belonging, support, and ownership, which are so important to employee wellbeing.⁴⁶ Confusion and concern about new professional roles (such as physician and anaesthesia associates) have, in some cases, further contributed to the undermining of morale—for example, by creating the sense that these roles are competing for training opportunities, are paid better than doctors in training, and are more highly valued by employers.⁴⁷

Of further major concern is that the clinical academic workforce—vital to the research, educational, and training enterprises of the NHS—is in major difficulty. A recent House of Lords Science and Technology Committee noted,⁴⁸ with alarm, the shortage of clinical academics and its consequences, including the long term future of clinical research and trials. Identifying financial disincentives as a key problem, the committee made several important recommendations. The NHS workforce plan did recognise the need for a more cohesive approach to clinical academic pathways, but delivering on this aspiration will require following the parliamentary committee's recommendations more comprehensively and making corresponding investments.

Doctors are not, of course, the only group affected by issues in professional development and career progression. Some staff groups—including clinical and non-clinical support staff and administrative staff—remain neglected in terms of investment and opportunities for training and development,⁴⁹ and a much more transparent, fair, standardised, and comprehensive approach is needed to meet their needs.

Conclusions and recommendations

The future of the NHS depends on the people who work in it. A bold vision (box 1) is now needed to make stewardship of the NHS workforce a top priority. Quite apart from the ethical imperative to look after the NHS workforce, secure their satisfaction and pride in their work, and assure their wellbeing, there are strong arguments that doing so will improve efficiency, productivity, and patient experience and outcomes. As the largest workforce in Europe (1.7 million people), investing in the staff of the NHS is also a sound investment in population health.

Box 1: A vision for the future NHS workforce

- NHS workforce stewardship is regarded as a key priority and important responsibility at all levels
- Staff are respected for their rich diversity and feel valued and proud to work in the NHS
- Roles and competencies are appropriately configured, with sufficient people in those roles to deliver high quality, safe care
- Working environments support all staff to thrive
- NHS careers in all roles are seen as attractive and interesting, are capable of enabling progression, and are suitably financially rewarded
- Regulation is designed and functions well to protect patients and secure the confidence of staff
- Career pathways are well designed, supported, and resourced, offering a positive experience in all roles

We make three specific recommendations to achieve this vision.

Workforce stewardship—Workforce stewardship should be recognised as a key priority and responsibility requiring active planning, design, investment, and evaluation through all levels of the system from a policy level through to employers.

Improve workplace conditions—NHS England and their equivalents in the devolved nations should introduce a collaboratively designed national framework for NHS employers to improve working environments for all NHS staff, including pay and conditions. It should set out:

- Minimum standards for the workplace, including on matters such as transport, availability of food, rota scheduling, rotation systems, and pay cycles

- Standards aimed at improving people management, including improved systems for line management and HR, defined by strong commitments and action on equality, diversity, and inclusion
- Standards for what “good” looks like for anti-racism and anti-discrimination
- Measures to protect NHS staff from unwanted sexual behaviour, violence, and aggression
- Systems for managing problematic and transgressive behaviours, conduct, sexual misconduct, and poor practice, supported by a comprehensive review of the legal frameworks relevant to employment in the NHS
- A revised pay review process
- A programme of investment to improve physical infrastructure
- The funding, investment, incentives, and enforcement methods to ensure the success of the framework, including board accountabilities where appropriate.

Government, NHS England and their equivalents in the devolved nations should prioritise funding and support improvement in administrative infrastructure, operational functioning, and work system design. This should use high quality systems co-design, human factors principles, and pilot innovation and change before scaling up.

Improve workforce planning—Government and system stakeholders should collaboratively develop a comprehensive programme of consultation and evaluation on workforce design and planning, including:

- New roles and how they can best be configured, with due consideration to the design of work systems and the right set of roles for providing high quality patient care
- Effects of scientific development and technological change, including artificial intelligence, for how work is done and how the workforce needs to be configured and supported
- Recruitment and professional development of staff in “non-clinical” roles

An independent review should be commissioned by the government by the end of 2024 to identify how to improve the quality of training pathways in the NHS, with a particular focus on improving experience and conditions and financial support, including options such as student loan forgiveness and other rewards and incentives. Finally, system stakeholders should implement in full the recommendations of the parliamentary committee on clinical academics, including those on the role of research in the NHS.

Some of these recommendations can be managed at organisational level. Others will need to be led from the top of government and the NHS centre, as they require dealing with some of the structural challenges and behaviours outside any individual organisation. Much stronger leadership and accountability for people and their development at all levels, from Whitehall downwards, is now needed for workforce stewardship.

Recommendations

- Make workforce stewardship a key priority
- Improve workplace conditions through a collaboratively designed framework of standards, design, and investment
- Improve workforce planning through a comprehensive consultation and evaluation on workforce design and planning, an independent

review, and full implementation of the parliamentary recommendations on clinical academics

Contributors and sources: All authors are members of the BMJ commission. MD-W leads a programme of work to improve the evidence base for improving quality and safety in the NHS and has longstanding research interests in issues relating to workforce, teams, employee voice, and culture and behaviour. She is a member of the BMJ International Advisory Board. CS is a clinical academic with a longstanding interest in embedding research into NHS care. She was deputy director/director of clinical academic training for Cambridge (2017-2022) until she became director of the Victor Phillip Dahdaleh Heart and Lung Research Institute, a new University-NHS collaboration that brings together more than 450 population health, laboratory, and clinical researchers with the aim of improving cardiovascular and lung health. MM is an adjunct clinical professor at Curtin University, Australia, an honorary senior research fellow at Cardiff University, UK, consultant in intensive care medicine in Cardiff, an author, and an editor of *BMJ OnExamination*. KP is chief medical officer of one of the largest NHS trusts in the NHS in England with over 24 000 staff and has been a responsible officer for over 10 years, covering not only secondary care but also primary care while he was medical director for NHS England (West Midlands). In each of these roles he has led the implementation of programmes to recruit, retain, and reward the workforce and also participated in initiatives to promote innovation at a workforce level. MD-W produced the first draft of the paper, and all authors contributed to ideas and revisions. All authors agreed the final draft. MD-W is guarantor.

Competing interests: We have read and understood BMJ policy on competing interests and declare: MD-W is currently undertaking evaluative work for the Care Quality Commission. She is an unpaid director and founder of THIS Labs. CS gave oral evidence to the House of Lords Science and Technology Committee Inquiry into Clinical Academics and the NHS. She is employed by the University of Cambridge, is an honorary consultant at Cambridge University Hospitals NHS Foundation Trust, and is director of studies in clinical medicine at Selwyn College, Cambridge. MM is an employee of *The BMJ* and has acted in various advisory roles for the health service including for the Welsh government. KP has no interests to declare.

Provenance and peer review: Commissioned; externally peer reviewed.

This article is part of The BMJ Commission on the Future of the NHS (<https://www.bmj.com/nhs-commission>). The purpose of the commission is to identify key areas for analysis, lay out a vision for a future NHS, and make recommendations as to how we get there. *The BMJ* convened this commission, which was chaired independently by Victor Adebowale, Parveen Kumar, and Liam Smeeth. *The BMJ* was responsible for the peer review, editing, and publication of the papers of the commission. The BMA, which owns *The BMJ*, grants editorial freedom to the editor in chief of *The BMJ*. The views expressed are those of the authors and may not necessarily comply with BMA policy.

We thank Rosie Lindsay for help with the bibliography for this article. The Healthcare Improvement Studies (THIS) Institute, which is led by Mary Dixon-Woods, is supported by the Health Foundation—an independent charity committed to bringing about better health and healthcare for people in the UK.

- 1 Rolewicz L, Palmer B, Lobont C. The NHS workforce in numbers: Nuffield Trust. 2022 <https://www.nuffieldtrust.org.uk/resource/the-nhs-workforce-in-numbers>
- 2 Baker C. NHS key statistics: England. House of Commons Library. 15 Nov 2023. <https://commonslibrary.parliament.uk/research-briefings/cbp-7281/>
- 3 Care Quality Commission. The state of health care and adult social care in England 2022-23. 2023. https://www.cqc.org.uk/sites/default/files/2023-10/20231020_stateofcare2223_print.pdf.
- 4 NHS Survey Coordination Centre. NHS staff survey 2023: national results briefing. March 2024. <https://www.nhsstaffsurveys.com/static/3b9bd4686a7075ed186a377e918c117b/National-Results-Briefing-2023.pdf>
- 5 Hart JT. The inverse care law. *Lancet* 1971;297:-12. doi: 10.1016/S0140-6736(71)92410-X pmid: 4100731
- 6 O'Dowd A. NHS temporary staffing bill "skyrockets" to £10.4bn. *BMJ* 2024;384:. doi: 10.1136/bmj.q140 pmid: 38237935
- 7 Stringer G, Ferguson J, Walshe K, et al. The use of locum doctors in the NHS - results of a national survey of NHS Trusts in England. *BMC Health Serv Res* 2023;23:. doi: 10.1186/s12913-023-09830-9 pmid: 37612669
- 8 Zaranko B, Sanford NJ, Kelly E, et al. Nurse staffing and inpatient mortality in the English National Health Service: a retrospective longitudinal study. *BMJ Qual Saf* 2023;32:-63. doi: 10.1136/bmjqs-2022-015291 pmid: 36167797
- 9 NHS England. NHS long term workforce plan. 2023. <https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/>
- 10 Warner M, Zaranko B. Implications of the NHS workforce plan: IFS Report, 2023. <https://ifs.org.uk/publications/implications-nhs-workforce-plan>
- 11 NHS England. General practice workforce. 31 December 2023. 2024. <https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/31-december-2023>
- 12 Fraser C, Beech J, Mendelsohn E. General practice tracker. Health Foundation <https://www.health.org.uk/news-and-comment/charts-and-infographics/general-practice-tracker>
- 13 Twigg DE, Kutzer Y, Jacob E, Seaman K. A quantitative systematic review of the association between nurse skill mix and nursing-sensitive patient outcomes in the acute care setting. *J Adv Nurs* 2019;75:-23. doi: 10.1111/jan.14194 pmid: 31483509
- 14 Francetic I, Gibson J, Spooner S, Checkland K, Sutton M. Skill-mix change and outcomes in primary care: Longitudinal analysis of general practices in England 2015-2019. *Soc Sci Med* 2022;308:115224. doi: 10.1016/j.socscimed.2022.115224 pmid: 35872540
- 15 Park S, Abrams R, Wong G, et al. Reorganisation of general practice: be careful what you wish for. *Br J Gen Pract* 2019;69:-8. doi: 10.3399/bjgp19X705941 pmid: 31558540
- 16 McDermott I, Spooner S, Goff M, et al. Scale, scope and impact of skill mix change in primary care in England: a mixed-methods study. *Health and Social Care Delivery Research* 2022;10:. doi: 10.3310/YWTU6690 pmid: 35593786
- 17 Woodward M, Dixon-Woods M, Randall W, et al. Thiscovery Authorship Group/ABC Contributor Group. How to co-design a prototype of a clinical practice tool: a framework with practical guidance and a case study. *BMJ Qual Saf* 2023;bmjqs-2023-016196. . doi: 10.1136/bmjqs-2023-016196 pmid: 38124136
- 18 Bimpong KAA, Khan A, Slight R, Tolley CL, Slight SP. Relationship between labour force satisfaction, wages and retention within the UK National Health Service: a systematic review of the literature. *BMJ Open* 2020;10:e034919. . doi: 10.1136/bmjopen-2019-034919 pmid: 32699127
- 19 Martin CA, Medisaukaite A, Gogoi M, et al. UK-REACH Study Collaborative Group. Discrimination, feeling undervalued, and health-care workforce attrition: an analysis from the UK-REACH study. *Lancet* 2023;402:-8. . doi: 10.1016/S0140-6736(23)01365-X pmid: 37604176
- 20 NHS. NHS staff survey national results 2022: national results briefing. 2023. <https://www.nhsstaffsurveys.com/static/8c6442c8d92624a830e6656baf633c3f/NHS-Staff-Survey-2022-National-briefing.pdf>
- 21 Beech J, Fraser C, Gardner T, et al. Stressed and overworked: what the Commonwealth Fund's 2022 International Health Policy Survey of Primary Care Physicians in 10 Countries means for the UK. The Health Foundation, 2023. <https://www.health.org.uk/publications/reports/stressed-and-overworked>
- 22 Williamson V, Lamb D, Hotopf M, et al. Moral injury and psychological wellbeing in UK healthcare staff. *J Ment Health* 2023;32:-8. doi: 10.1080/09638237.2023.2182414 pmid: 36883341
- 23 Liberati E, Richards N, Willars J, et al. A qualitative study of experiences of NHS mental healthcare workers during the Covid-19 pandemic. *BMC Psychiatry* 2021;21:. doi: 10.1186/s12888-021-03261-8 pmid: 33980215
- 24 Oikonomou E, Carthey J, Macrae C, Vincent C. Patient safety regulation in the NHS: mapping the regulatory landscape of healthcare. *BMJ Open* 2019;9:e028663. doi: 10.1136/bmjopen-2018-028663 pmid: 31289082
- 25 Vindrola-Padros C, Ledger J, Hill M, Tomini S, Spencer J, Fulop NJ. The special measures for quality and challenged provider regimes in the English NHS: a rapid evaluation of a national improvement initiative for failing healthcare organisations. *Int J Health Policy Manag* 2022;11:-26. doi: 10.34172/ijhpm.2022.6619 pmid: 35490260
- 26 NHS Staff Council Health Safety and Wellbeing Partnership Group. Welfare facilities for healthcare staff. 2021. <https://www.nhsemployers.org/publications/welfare-facilities-healthcare-staff>
- 27 Daniels J, Robinson E, Jenkinson E, Carlton E. Perceived barriers and opportunities to improve working conditions and staff retention in emergency departments: a qualitative study. *Emerg Med J* 2024; emermed-2023-213189. doi: 10.1136/emered-2023-213189 pmid: 38195524
- 28 Oliver D. David Oliver: Staff hydration matters more than keeping up appearances. *BMJ* 2020;368:. . doi: 10.1136/bmj.l7088 pmid: 31915132
- 29 Lamé G, Liberati EG, Canham A, et al. Why is safety in intrapartum electronic fetal monitoring so hard? A qualitative study combining human factors/ergonomics and social science analysis. *BMJ Qual Saf* 2024; bmjqs-2023-016144.pmid: 37945341
- 30 Sinnott C, Moxey JM, Marjanovic S, et al. Identifying how GPs spend their time and the obstacles they face: a mixed-methods study. *Br J Gen Pract* 2022;72:-60. doi: 10.3399/bjgp.2021.0357 pmid: 34844920
- 31 Bloom N, Sadun R, Van Reenen J. *Management as a technology?* National Bureau of Economic Research, 2016doi: 10.3386/w22327
- 32 Jones B, Horton T, Home J. Strengthening NHS management and leadership. Health Foundation. 2022. <https://www.health.org.uk/publications/long-reads/strengthening-nhs-management-and-leadership>
- 33 Dixon-Woods M. Learning from maternity service failures at East Kent Hospitals. *BMJ* 2022;379:. doi: 10.1136/bmj.o2755 pmid: 36400438
- 34 Naqvi H, Williams RD, 2ndChinembiri O, Rodger S. Workforce and workplace racism in health systems: organisations are diverse but not inclusive. *Lancet* 2022;400:-6. doi: 10.1016/S0140-6736(22)02395-9 pmid: 36502831
- 35 NHS England. We are the NHS: people plan 2020-21—action for us all. 2020. <https://www.england.nhs.uk/publication/we-are-the-nhs-people-plan-for-2020-21-action-for-us-all/>
- 36 Chartered Institute of Personnel and Development. The state of employee relations in the NHS in the "new normal". CIPD Applied Research Conference 2023. <https://www.cipd.org/globalassets/media/comms/get-involved/events/2023-arc-employee-relations-nhs-8415.pdf>
- 37 Martin G, Chew S, McCarthy I, Dawson J, Dixon-Woods M. Encouraging openness in health care: Policy and practice implications of a mixed-methods study in the English National Health Service. *J Health Serv Res Policy* 2023;28:-24. doi: 10.1177/13558196221109053 pmid: 35732062
- 38 Edmondson AC, Lei Z. Psychological safety: the history, renaissance, and future of an interpersonal construct. *Annu Rev Organ Psychol Organ Behav* 2014;1:-43doi: 10.1146/annurev-orgpsych-031413-091305.
- 39 Maben J, Aunger JA, Abrams R, et al. Interventions to address unprofessional behaviours between staff in acute care: what works for whom and why? A realist review. *BMC Med* 2023;21:. doi: 10.1186/s12916-023-03102-3 pmid: 37904186

- 40 Dixon-Woods M, Campbell A, Martin G, et al. Improving employee voice about transgressive or disruptive behavior: a case study. *Acad Med* 2019;94:-85. doi: 10.1097/ACM.0000000000002447 pmid: 30211753
- 41 Kline R. Paradigm lost? Reflections on the effectiveness of NHS approaches to improving employment relations. *BMJ Lead* 2023; leader-2022-000729. doi: 10.1136/leader-2022-000729 pmid: 37192121
- 42 Nagpaul C. An independent, root and branch review and reform of GMC processes is needed to ensure fairness in medical regulation. *BMJ* 2022;377:. doi: 10.1136/bmj.o1346 pmid: 35623632
- 43 Palmer B, Rolewicz L. The long goodbye? Exploring rates of staff leaving the NHS and social care: Nuffield Trust. 2022. <https://www.nuffieldtrust.org.uk/resource/the-long-goodbye-exploring-rates-of-staff-leaving-the-nhs-and-social-care>
- 44 Bajaj K, Brazil V, Purdy E. *Simulation as an improvement technique*. Cambridge University Press, 2023.
- 45 Khalil K, Sooriyamoorthy T, Ellis R. Retention of surgical trainees in England. *Surgeon* 2023;21:-7. doi: 10.1016/j.surge.2022.09.001 pmid: 36163150
- 46 Waller L. Fostering a sense of belonging in the workplace: Enhancing well-being and a positive and coherent sense of self. *Palgrave handbook of workplace well-being* 2020:341-367.
- 47 Oliver D. David Oliver: The fractious debate over physician associates in the NHS. *BMJ* 2023;383:. doi: 10.1136/bmj.p2449 pmid: 37879724
- 48 House of Lords Science and Technology Committee. The future of clinical research in the NHS is under threat. 2023. <https://committees.parliament.uk/work/7064/clinical-academics-in-the-nhs/news/175630/the-future-of-clinical-research-in-the-nhs-is-under-threat/>
- 49 Anderson M, O'Neill C, Macleod Clark J, et al. Securing a sustainable and fit-for-purpose UK health and care workforce. *Lancet* 2021;397:-2011. doi: 10.1016/S0140-6736(21)00231-2 pmid: 33965066