

University of Southampton co-ordinated response to:

NHS 10 Year Workforce Plan - Call for Evidence

Full Submission

Context of Submission

The University of Southampton is a research-intensive Russell Group university with a track record in providing evidence and informing policies in safe healthcare staffing. This includes evidence-supply for the previous 2023 NHS Long-term Workforce Plan and the Royal College of Nursing's Workforce Standards published earlier this year. Our research group dedicated to understanding and increasing the effectiveness of our health workforce and its surrounding systems have provided a collective response to this call for evidence (<https://www.southampton.ac.uk/research/groups/health-workforce-systems>). Our researchers would be very open to discussing any aspects of the plan and its delivery further.

The following responses have been provided by:

Dr Chiara Dall'Ora, Associate Professor in Health Workforce, Research Group lead, C.Dallora@soton.ac.uk

Dr Talia Emmanuel, Research Fellow, T.Emmanuel@soton.ac.uk

Professor Peter Griffiths, Chair in Health Services Research, NIHR Senior Investigator, peter.griffiths@soton.ac.uk

Dr Paul Meredith, Senior Research Fellow, P.F.Meredith@soton.ac.uk

Dr Christina Saville, Lecturer in Healthcare Management, C.E.Saville@soton.ac.uk

Dr Joanne Turnbull, Associate Professor, J.C.Turnbull@soton.ac.uk

Dr Lesley Turner, Lecturer in Midwifery, L.Y.Turner@soton.ac.uk

This response was co-ordinated by **Dr Nat Easton**, Specialist Policy Officer and Research Fellow, N.H.C.Easton@soton.ac.uk

Response to Section 1:

Analogue to Digital

We have witnessed a gradual move from paper-based nursing assessments and care plans towards digital capture and electronic records. An early pioneer of this in the NHS is the VitalPAC system (now part of [System C CareFlow EPR](#)), which demonstrably improved the quality of care by providing decision support tools for nurses. It [reduced patient mortality](#) through improved patient monitoring and escalation of care, and [reduced outbreaks of norovirus](#) and ward closures by earlier identification of infection symptoms.

Hospital-wide surveillance becomes possible with near real-time digital capture and electronic records. The [HAVEN research](#), funded jointly with the Wellcome Trust, [developed a dashboard](#) to promptly identify patients in need of intensive care, implementing a system for the real-time risk assessment of patients.

Digital Workforce Management

Whilst patient management is on the path from analogue to digital, workforce management has barely started that journey. Staff management in terms of matching staff deployment to care needs is currently in its infancy. The current method (based on the Safer Nursing Care Tool) requires frequent assessment by nurses of their workload and manual data entry before staffing managers can review current deployments. These nurse assessments of workload take time away from patient care and reduce productivity: one hour of nurse time per ward per day is equivalent to 500 nurses across NHS England. The current method also fails to address team composition in terms of skill-mix.

Our [PREDICT-NURSE](#) study seeks to estimate nursing requirements from routinely collected electronic patient data by linking staff rostering data with patient data at the ward level. An earlier NIHR ARC Wessex study demonstrated the [feasibility of using a machine learning algorithm](#) to provide estimates of requirements. This is a timely development with the maturity of IT systems gradually replacing paper-based case-notes to provide richer datasets for automated interrogation. There is potential for such algorithms to be embedded in near-time dashboards to provide hospital-wide monitoring of staffing sufficiency.

Digital Scheduling Tools

Evidence from [roster optimisation research](#) shows that mathematical optimisation and digital scheduling tools can improve fairness, reduce fatigue, and enhance productivity. Analysis of 1.4 million roster records shows that long shifts, consecutive workdays, excessive night work, and insufficient rest significantly increase sickness absence. Digital scheduling tools can address these risk factors, reducing administrative burden, improving fairness, and enhancing job satisfaction among nursing staff.

Hospital to Community

Long-term planning of nursing workforce supply is critical to ensuring a sufficient and appropriately skilled workforce to enable the shift from hospital to community.

Long-Term Sustainability of Nursing Workforce Supply

Long-term sustainability requires a slower-paced trajectory (10-15 years) to enable greater focus on domestic supply in alignment with the NHS 10 Year Health Plan to reduce reliance on international recruitment to below 10% by 2035. Our research highlights concerns that interventions are often driven by relatively short-term targets. For example, the aim of the previous government to increase the workforce by 50,000 nurses between 2019 and 2024. Our evaluation of this policy in the [NIHR funded Evaluation of the N50k programme](#) showed that whilst this target was met, trust and education leads were concerned about the sustainability of nursing supply in the longer term. Around 90% of the government's target figure came from international recruitment.

Clinical Placements for Community Settings

Within the new 10 Year Health Plan for England, it states that it will become a requirement for every nursing student to have a 'high quality experience in neighbourhood and community settings and social care', expected to be in place for 2027-2028 intakes. Our research, which will be shared in an upcoming publication and policy brief, highlighted a need for greater integrated working between Higher Education Institutions (HEIs) and the NHS to agree on definitions of capacity, and an increase in placement capacity for specific specialties, such as community settings, mental health, and learning disability nursing.

Addressing Declining Applicant Rates for Nursing

Despite a small increase in acceptance rates in 2025, there have been declines in nursing student applicant rates in recent years. Our research suggests that driving up interest in nursing as a career requires sustained and long-term intervention and funding through:

1. Improved integration of HEIs in nurse workforce planning, with greater involvement at the national level in decision-making about domestic supply
2. Large-scale and sustained investment in advertising campaigns to raise the profile and attractiveness of nursing
3. Greater nuance in setting targets for particular skills and fields of nursing (e.g., increasing undergraduates in learning disability nursing)
4. Reducing the financial burden and/or incentivising nursing students (e.g., reimbursement for placement travel as per the 10 Year Plan; greater level of support fund, training grant)

Critical Professions, Roles and Skills

As policy shifts place greater emphasis on care in the community, acute hospitals will increasingly be reserved for patients with higher acuity. It is therefore vital that acute hospitals are appropriately staffed with registered nurses to ensure safe, effective, and efficient care delivery. [Our research](#) demonstrates that increasing the proportion of registered nurses (relative to support staff) on hospital wards has been associated with [improved patient outcomes](#) and [reduced net costs](#). Such staff are more flexible as they are able to undertake a wider range of tasks.

Reducing the use of temporary staff

Evidence challenges assumptions that current rostering and temporary staffing practices are adequate. A 10% increase in temporary registered nurse proportion raises [mortality risk by 2.3%](#). Heavy reliance on temporary staff (>1.5 hours per patient/day) [increases hazard of death by 12%](#). Permanent workforce expansion is more cost-effective than agency reliance ([£2,778 per QALY](#)). Overuse of temporary staff also erodes team cohesion and shared values, undermining the shift to integrated community care models.

Response to Section 2:

Long-Term Sustainability of Nursing Workforce Supply

Our research highlights concerns that interventions are often driven by relatively short-term targets. For example, the aim of the previous government to increase the workforce by 50,000 nurses between 2019 and 2024.

Our evaluation of this policy in the [NIHR funded Evaluation of the N50k programme](#) showed that whilst this target was met, trust and education leads were concerned about the sustainability of nursing supply in the longer term. Around 90% of the government's target figure came from international recruitment.

Long-term sustainability of nursing workforce supply requires a slower-paced trajectory (10-15 years) to enable greater focus on domestic supply in alignment with the NHS 10 Year Health Plan to reduce reliance on international recruitment to below 10% by 2035.

Addressing Declining Applicant Rates for Nursing

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3. Greater nuance in setting targets for particular skills and fields of nursing (e.g., increasing undergraduates in learning disability nursing)
4. Reducing the financial burden and/or incentivising nursing students (e.g., reimbursement for placement travel as per the 10 Year Plan; greater level of support fund, training grant)

Clinical Placements and Service Redesign

Within the new 10 Year Health Plan for England, it will become a requirement for every nursing student to have a 'high quality experience in neighbourhood and community settings and social care', expected to be in place for 2027-2028 intakes. Our research highlighted a need for greater integrated working between Higher Education Institutions (HEIs) and the NHS to agree on definitions of capacity, and an increase in placement capacity for specific specialties, such as community settings, mental health, and learning disability nursing.

Critical Evaluation of Technology Assumptions

Future workforce planning must be informed by realistic assumptions and grounded in empirical evidence, particularly in light of ongoing technological developments. Our research highlights concerns regarding the [often untested assumptions](#) underpinning the adoption of new technologies, particularly those related to anticipated reductions in workload. While technological innovations can transform care delivery and offer new opportunities for improvement, simplistic assumptions about increased productivity or reduced workload risk overlooking the complexity of clinical practice.

Research into electronic patient records has not consistently demonstrated a reduction in documentation burden. In some cases, evidence suggests that documentation demands may actually increase. In [our studies](#) on vital signs monitoring, we found that the use of electronic recording devices and automated early warning score algorithms did not significantly reduce the time required to monitor patients for signs of deterioration, despite prior claims of substantial time savings.

Our observations revealed that [nurses frequently engage in multiple concurrent activities during vital signs monitoring](#), including providing emotional support and counselling to patients. Technologies such as remote monitoring may streamline the process of collecting physiological data, but they do not replace these parallel, relational aspects of care. Consequently, any perceived time savings may be offset by reductions in care quality or missed opportunities for patient engagement.

Skill Mix and Productivity Assumptions

We wish to highlight the risks associated with workforce projections that rely on assumptions of improved productivity through changes in skill mix. While there is evidence that nurses can substitute for doctors effectively in certain contexts, this does not automatically translate into increased productivity. Some studies suggest that nurses may take longer to complete comparable tasks; therefore, decisions regarding skill mix should be guided by both workforce availability and the quality of care delivered to patients.

Recent [policy developments](#) have suggested that nursing productivity can be increased by expanding the number of support staff relative to registered nurses. However, our research in acute care settings challenges this assumption. [Our recent review of the evidence](#), alongside a study conducted in four NHS hospitals, indicates that investing in more highly trained staff may offer [better value for money](#)—even when those staff are not consistently working at the full extent of their training and competence. In particular, increasing the proportion of registered nurses (relative to support staff) on hospital wards has been associated with improved [patient outcomes](#) and [reduced net costs](#). Such staff are more flexible as they are able to undertake a wider range of tasks.

Furthermore, [our recent study](#) demonstrated that avoiding registered nurse understaffing—relative to current standards, which may themselves be suboptimal—was a highly cost-effective intervention (£2,778 per QALY). It resulted in reductions in patient mortality, length of hospital stay, and readmission rates.

Impact of Temporary Staffing on Workforce Supply and Outcomes

Evidence challenges assumptions that current rostering and temporary staffing practices are adequate. A 10% increase in temporary registered nurse proportion raises [mortality risk by 2.3%](#). Heavy reliance on temporary staff (>1.5 hours per patient/day) [increases hazard of death by 12%](#).

Poor rostering increases sickness absence and turnover, reducing effective workforce supply. Specifically, [analysis of 1.4 million roster records](#) shows that long shifts, consecutive workdays, excessive night work, and insufficient rest significantly increase sickness absence. Models must account for these risk factors when predicting workforce availability. Permanent workforce expansion is more cost-effective than reliance on bank or agency staff.

Implications for Community Shift

These considerations are especially critical as policy shifts place greater emphasis on care in the community. Acute hospitals will increasingly be reserved for patients with higher acuity, and it is therefore vital that they are appropriately staffed to ensure safe, effective, and efficient care delivery. Modelling should not assume a steady state (in terms of staff per bed) or reduced skill mix as both are likely to reduce productivity.

Future Opportunities from AI Development

In recent times there has been a persistent shortage of registered nurses and it appears increasingly difficult to recruit into the profession. However, rather than focusing on the prospect that AI can replace skilled workers in the care professions, the opportunity created by the advance of AI in other industries should be recognised. It may be that as meaningful professional work becomes increasingly scarce in other sectors, health professions, including nurses, benefit in terms of an increased pool of able candidates.

Response to Section 3:

Digital Initiatives that Have Increased (or have potential to increase) Workforce Productivity

VitalPAC System and Electronic Physiological Surveillance

We have witnessed a gradual move from paper-based nursing assessments and care plans towards digital capture and electronic records. An early pioneer of this in the NHS is the VitalPAC system (now part of [System C CareFlow EPR](#)), which demonstrably improved the quality of care by providing decision support tools for nurses. It [reduced patient mortality](#) through improved patient monitoring and escalation of care, and [reduced outbreaks of norovirus](#) and ward closures by earlier identification of infection symptoms.

HAVEN Dashboard for Real-Time Risk Assessment

Hospital-wide surveillance becomes possible with near real-time digital capture and electronic records. The [HAVEN research](#), funded jointly with the Wellcome Trust, [developed a dashboard](#) to promptly identify patients in need of intensive care, implementing a system for the real-time risk assessment of patients.

PREDICT-NURSE: Digital Workforce Management

Whilst patient management is on the path from analogue to digital, workforce management has barely started that journey. The current method (Safer Nursing Care Tool) requires frequent assessment by nurses of their workload and manual data entry. These nurse assessments of workload take time away from patient care and reduce productivity; one hour of nurse time per ward per day is equivalent to 500 nurses across England.

The [PREDICT-NURSE](#) study seeks to estimate nursing requirements from routinely collected electronic patient data by linking staff rostering data with patient data at the ward level. An earlier NIHR ARC Wessex study demonstrated the [feasibility of using a machine learning algorithm](#) to provide estimates of requirements. This is a timely development with the maturity of IT systems gradually replacing paper-based case-notes to provide richer datasets for automated interrogation. There is potential for such algorithms to be embedded in near-time dashboards to provide hospital-wide monitoring of staffing sufficiency.

Digital Scheduling and Roster Optimisation

Evidence from [roster optimisation research](#) shows that mathematical optimisation and digital scheduling tools can improve fairness, reduce fatigue, and enhance productivity. Analysis of 1.4 million roster records shows that long shifts, consecutive workdays, excessive night work, and insufficient rest significantly increase sickness absence.

Mathematical roster optimisation can reduce administrative burden, improve fairness, reduce fatigue and enhance job satisfaction among nursing staff.

Critical Assessment of Technology-Driven Productivity Assumptions

Our research highlights concerns regarding the [often untested assumptions](#) underpinning the adoption of new technologies, particularly those related to anticipated reductions in workload. While technological innovations can transform care delivery and offer new opportunities for improvement, simplistic assumptions about increased productivity or reduced workload risk overlooking the complexity of clinical practice.

Research into electronic patient records has not consistently demonstrated a reduction in documentation burden. In some cases, evidence suggests that documentation demands may actually increase. In [our studies](#) on vital signs monitoring, we found that the use of electronic recording devices and automated early warning score algorithms did not significantly reduce the time required to monitor patients for signs of deterioration, despite prior claims of substantial time savings.

Our observations revealed that [nurses frequently engage in multiple concurrent activities during vital signs monitoring](#), including providing emotional support and counselling to patients. Technologies such as remote monitoring may streamline the process of collecting physiological data, but they do not replace these parallel, relational aspects of care. Consequently, any perceived time savings may be offset by reductions in care quality or missed opportunities for patient engagement.

Addressing Skill Mix Assumptions for Productivity

We wish to highlight the risks associated with workforce projections that rely on assumptions of improved productivity through changes in skill mix. While there is evidence that nurses can substitute for doctors effectively in certain contexts, this does [not automatically translate into increased productivity](#). Some studies suggest that nurses may take longer to complete comparable tasks; therefore, decisions regarding skill mix should be guided by both workforce availability and the quality of care delivered to patients.

Overly simplistic or optimistic assumptions about productivity gains should be avoided. While advanced nursing practice can enhance service delivery and improve patient outcomes, it is essential to ensure that core nursing services continue to be delivered to a high standard. Recent policy developments have suggested that nursing productivity can be increased by expanding the number of support staff relative to registered nurses. However, our research in acute care settings challenges this assumption.

Our recent review of the evidence, alongside a study conducted in four NHS hospitals, indicates that investing in more highly trained staff may offer better value for money—even when those staff are not consistently working at the full extent of their training and

competence. In particular, increasing the proportion of registered nurses (relative to support staff) on hospital wards has been associated with improved patient outcomes and reduced net costs. Such staff are more flexible as they are able to undertake a wider range of tasks.

Furthermore, [our recent study](#) demonstrated that avoiding registered nurse understaffing—relative to current standards, which may themselves be suboptimal—was a highly cost-effective intervention (£2,778 per QALY). It resulted in reductions in patient mortality, length of hospital stay, and readmission rates.

Impact on Community Shift

These considerations are especially critical as policy shifts place greater emphasis on care in the community. Acute hospitals will increasingly be reserved for patients with higher acuity, and it is therefore vital that they are appropriately staffed to ensure safe, effective, and efficient care delivery. Modelling should not assume a steady state (in terms of staff per bed) or reduced skill mix as both are likely to reduce productivity.

Training Gaps: Clinical Placements

Within the new 10 Year Plan, it will become a requirement for every nursing student to have a 'high quality experience in neighbourhood and community settings and social care', expected to be in place for 2027-2028 intakes. Our research highlighted a need for greater integrated working between Higher Education Institutions (HEIs) and the NHS to agree on definitions of capacity, and an increase in placement capacity for specific specialties, such as community settings, mental health, and learning disability nursing.

Response to Section 4:

Policy Interventions that Have Improved Workforce Outcomes

Investment in Registered Nurse Staffing

Our research demonstrates that investment in registered nurse staffing [can reduce sickness absence](#). Analysis of 1.4 million roster records shows that long shifts, consecutive workdays, excessive night work, and insufficient rest significantly increase sickness absence. Poor rostering increases sickness absence and turnover, reducing effective workforce supply.

Furthermore, [our recent study](#) demonstrated that avoiding registered nurse understaffing—relative to current standards, which may themselves be suboptimal—was a highly cost-effective intervention (£2,778 per QALY). It resulted in reductions in patient mortality, length of hospital stay, and readmission rates. This demonstrates how policy interventions focused on adequate staffing levels directly improve both workforce outcomes (reduced sickness absence) and patient outcomes (reduced mortality, shorter stays, fewer readmissions).

Permanent workforce expansion is more cost-effective than reliance on bank and agency staff. Evidence shows that a 10% increase in temporary registered nurse proportion raises [mortality risk by 2.3%](#). Heavy reliance on temporary staff (>1.5 hours per patient/day) [increases hazard of death by 12%](#).

Fair and Transparent Rostering

Fair and transparent rostering supports equity and work-life balance. [Evidence](#) from roster optimisation research shows that mathematical optimisation and digital scheduling tools can improve fairness, reduce fatigue, and enhance productivity. These tools can reduce administrative burden, improve fairness, and enhance job satisfaction among nursing staff, directly contributing to positive workforce outcomes.

Embedding Strong Core Values

Fair Rostering as a Value

[Fair and transparent rostering](#) supports equity and work-life balance, embedding these values into everyday decision-making. [Mathematical roster optimisation](#) can address risk factors such as long shifts, consecutive workdays, excessive night work, and insufficient rest, demonstrating an organisational commitment to staff wellbeing.

Team Cohesion and Shared Values

Overuse of temporary staff erodes team cohesion and shared values. Our evidence shows that heavy reliance on temporary staffing has negative impacts on both patient outcomes and workforce culture. A 10% increase in temporary registered nurse proportion raises [mortality risk by 2.3%](#). Heavy reliance on temporary staff (>1.5 hours per patient/day) [increases hazard of death by 12%](#). It also undermines the stable teams necessary for strong organisational culture. Building a permanent, stable workforce supports the embedding of shared values and professional identity.

Supporting Retention Through Culture and Career Development

Our [recent review of evidence](#) and empirical findings show that working conditions, such as ward environment, teams, and culture, are key factors for nurses choosing to stay in the NHS. [Our research](#) suggests that efforts made to retain staff, including flexible working, career development, and early career support (e.g., preceptorships, onboarding of international staff) were highlighted as particularly important. However, nurses suggested that these efforts were not consistently implemented and visible across employers.

Ensuring a focus on career development (for example, implementing career pathway conversations aligned with the 10 Year Health Plan) will ensure a skilled workforce to support the 3 shifts, and ensure nurses feel valued and more likely to stay in the NHS.

Systems for Listening to Staff Feedback

Fair and transparent rostering practices provide a concrete mechanism for listening to and acting on staff feedback. Our [qualitative research on nurse shift scheduling](#) highlighted that nurses value being involved in decisions about their working patterns and schedules. Systems that allow nurses to express preferences and see those preferences reflected in rosters demonstrate that leaders actively listen and respond to staff needs.

However, our research also indicates that retention efforts, including flexible working and career development opportunities, [are not always visible to staff](#). This suggests a need for better communication systems to ensure staff are aware of the actions being taken in response to their feedback, particularly from underrepresented groups who may face additional barriers to accessing career development opportunities.

Response to Section 5:

To support the ambitions of the 10 Year Health Plan, we highlight the importance of grounding workforce modelling and productivity assumptions in robust empirical evidence. While nursing assistants are indispensable as part of a skill-mix team, they cannot substitute for the expertise and clinical judgment of registered nurses.

Evidence consistently shows that higher proportions of nursing assistants relative to RNs are associated with poorer patient outcomes, including increased mortality. Therefore, skill mix decisions must be guided not only by workforce availability but also by the quality and efficiency of care delivered.

We also caution against over-reliance on technology as a solution to workforce pressures. Our research shows that electronic patient records and remote monitoring do not consistently reduce documentation burden or workload. Nurses often perform relational tasks alongside clinical monitoring, which technology cannot replace. Productivity gains must be assessed holistically, considering both clinical and emotional aspects of care.

Finally, we emphasise the need for long-term investment in domestic workforce supply, fair rostering practices, and permanent staffing. Overuse of temporary staff increases mortality risk and undermines team cohesion. Digital scheduling tools and predictive staffing algorithms offer promising avenues to improve fairness, reduce fatigue, and enhance workforce sustainability.

These insights are critical to ensuring that future workforce planning is realistic, evidence-based, and aligned with the values of safe, effective, and person-centred care.

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Griffiths, P., et al. Nurse staffing levels, missed vital signs and mortality in hospitals: retrospective longitudinal observational study. *Health Services and Delivery Research Journal*, 2018. 6(38).

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