

ENGINEERING WORKFORCE: SHAPING HEALTH AND CARE SYSTEMS.

Institution of
**MECHANICAL
ENGINEERS**

Roundtable summary
15 May 2026

Improving the world through engineering

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1 INTRODUCTION

1.1 Background

This brief synthesises insights from the Institution of Mechanical Engineers (IMechE) Biomedical Engineering Division's roundtable on 'The Role of the Engineering Workforce in Shaping Health and Care Systems', held at Durham University Business School.

This work builds on previous reports on 'Transforming Healthcare: The Role of Engineering in Delivering a Net Zero Health Service' and 'Automating the Home'.^{1,2} Current NHS policy and other expert perspectives have been integrated to gain an understanding of the current and future needs of the healthcare system and MedTech industries in the UK.

The objective is to offer additional actionable, evidence-based recommendations that will advance engineering talent pipelines, clarify technical career pathways, and accelerate the digital and sustainable transformation of UK health and care systems.

IMechE makes conclusions and recommendations following the discussions and drawing on previously published reports, which apply to the following actors across the UK's four nations:

Government:

Departments, funders, and regulatory bodies run through central government relating to healthcare, eg. DHSC, MHRA, NIHR, Innovate UK.

Healthcare:

National Health Services in England, Scotland, and Wales and Health and Social Care in Northern Ireland, and associated bodies and local providers of public healthcare.

Higher Education:

Universities and institutions that are active in teaching and research relating to engineering and health disciplines.

Industry:

Companies that develop and sell services relating to health and its sustainable delivery. Includes organisations from small and medium enterprises (SMEs) to large multinationals.

Professional Engineering Institutions:

Bodies that are responsible for licensing and accrediting engineering education courses in the UK, as well as chartering engineers and promoting policy advice to government.

2 DISCUSSION

The UK's health and care sectors are navigating a period of profound transformation, driven by rapid technological innovation, evolving patient needs, and ambitious policy commitments to sustainability and workforce reform. At the heart of this transformation lies the engineering workforce, a critical, yet often under-recognised, pillar of the nation's ability to deliver safe, effective, and future-ready healthcare.

The NHS faces mounting pressures from a rapidly ageing population, rising demand for complex care, and the urgent need to decarbonise the health system in line with NHS Net Zero commitments. At the same time, technological advances from digital health platforms to medical devices and AI-enabled diagnostics are reshaping the way care is delivered, monitored, and managed. Engineers are essential to integrating these new technologies, ensuring their safe use, and maintaining the infrastructure that underpins modern healthcare. Yet, as highlighted by delegates during the roundtable, there remain persistent barriers to attracting, training, and retaining engineering talent in the health sector.

The major obstacle is the fragmentation and inconsistency of apprenticeship, T-level, and professional training pathways for engineers entering healthcare. The new and revised Health and Science T-level will not have an engineering component, focussing instead on science and medicine. It does not acknowledge the engineering aspect of healthcare science which some students might wish to follow. Students wishing to pursue a career in healthcare engineering will only have the traditional engineering T-level available to them, with no exposure to the clinical aspects of engineering. Delegates noted that employers often struggle with recruitment, citing uncertainty over how to recruit apprentices; with age restrictions that limit clinical exposure for younger trainees and funding constraints that make it difficult for smaller organisations to participate. The lack of local colleges offering health-focused apprenticeships further exacerbates these issues, sometimes forcing employers to send trainees further afield at additional cost. Furthermore, there is a widespread lack of awareness among employers about the support schemes and structured curricula available, such as the Healthcare Medical Devices Technician or Healthcare Science Practitioner schemes, which could help bridge existing gaps.

Another significant issue is the lack of clarity and recognition around engineering roles in the NHS. With over 40 possible job titles for engineers in clinical settings, both hospital HR departments and prospective candidates often lack visibility into the responsibilities, progression routes, and value of these roles. This confusion is compounded by the fact that many biomedical engineering graduates gain employment in mechanical or electrical engineering positions, rather than clinical environments that align with their training. Delegates agreed that better communication at school and university level is essential, as is the development of conversion courses, to help graduates from related disciplines transition into healthcare engineering; a strategy successfully adopted in other NHS professions, such as clinical psychology.

Professional registration remains another area of concern. Despite the existence of the Register of Clinical Technologists, uptake of professionally recognised accreditation remains low, with only a fraction of eligible professionals registered. This undermines the profile, career development, and public trust in the engineering workforce, and stands in contrast to the statutory registration requirements for clinical scientists via the Health & Care Professions Council (HCPC). Delegates highlighted the need for stronger incentives, mentoring, and alignment with professional bodies such as IMechE and Institute of Physics and Engineering in Medicine (IPeM), to raise registration rates and support career progression.

Beyond workforce development, the roundtable also explored the integration of engineering into the broader transformation of the NHS, particularly the shift towards more technologically-advanced and sustainable models of care. The transition from acute to primary and home-based care, for example, raises new challenges for equipment deployment, calibration, and maintenance, as well as compliance with safety and quality standards such as ISO 13485:2016, and ISO 15189:2022 for quality management and competence in medical laboratories respectively. The design and adaptability of healthcare buildings was also identified as a crucial factor, with the opinion that engineers must be involved from the earliest stages to ensure that facilities are fit for purpose, resilient to future change, and optimised for efficiency, safety, and sustainability.

Sustainability and environmental responsibility emerged as cross-cutting themes. Delegates emphasised the importance of embedding planetary health and circular economy principles into engineering education, starting from primary school and extending through to postgraduate training. This aligns with the NHS Green Plan 2025–2028, which mandates annual carbon reduction reporting, board-level sustainability leadership, and integration of environmental considerations into all aspects of care delivery.^{3,4}

The roundtable also underscored the need for greater management engagement, interdisciplinary collaboration, and patient/public involvement in the design and deployment of new technologies and sustainable practices. Political and influencing skills, commercialisation training, and national surveys to benchmark best practice were all cited as important levers for change. Delegates called for every NHS trust to appoint a chief engineer at board level, to provide strategic leadership and ensure that engineering perspectives are embedded in decision-making.

Despite these insights, several gaps remain in current practice and policy alignment. National workforce planning, funding updates, diversity and inclusion, digital transformation, and robust evaluation frameworks are all areas where further action is needed. The NHS Long Term Workforce Plan (and forthcoming 10 Year Workforce Plan), the Green Plan, and the latest digital transformation strategies provide a strong policy foundation but must be fully integrated with frontline experience and expertise from the engineering community.^{5,6,7,8,9}

This brief therefore seeks to bridge the gap between delegate experience and contemporary policy, offering a suite of recommendations that are both grounded in real-world challenges and aligned with the strategic direction of the NHS and UK government. By addressing these issues holistically, the NHS can unlock the full potential of its engineering workforce, driving innovation, sustainability, and improved patient care for the future.

3 CONCLUSION AND RECOMMENDATIONS

The engineering workforce is pivotal to the NHS's ability to deliver world-class, sustainable, and technologically advanced care. By implementing the below recommendations, the NHS and its partners can unlock the full potential of engineering talent, drive innovation, and secure a resilient future for health and care systems across the UK.

3.1 Advancing engineering apprenticeships and training in healthcare

The UK's healthcare system is increasingly reliant on a technically skilled and adaptable engineering workforce to support innovation, safety, and sustainability. However, persistent fragmentation in apprenticeship, T-level, and training pathways has led to inconsistent recruitment, limited access, and widespread confusion about career progression. Employers and delegates at the roundtable highlighted obstacles such as funding barriers, lack of local training provision, and insufficient awareness of national support schemes. In addition, the sector continues to struggle with underrepresentation of women, ethnic minorities, and neurodiverse individuals, limiting the diversity of talent entering healthcare engineering. Addressing these issues is foundational to building a sustainable, inclusive, and future-ready workforce. The following recommendations are designed to standardise pathways, enhance support, and foster a culture of diversity and recognition within the engineering profession.

3.1.1 RECOMMENDATION: HEALTHCARE ENGINEERING SKILLS FRAMEWORK

Develop a unified, high-quality education and training framework for healthcare engineering. This should standardise pathways, embed digital and AI competencies, and integrate sustainability, circular economy principles and planetary health from early education to postgraduate level. This will ensure a consistent, future-ready workforce with clear progression and parity with clinical careers.

Government, Healthcare, Higher Education

Policy development:

- NHS England and the Department for Education should further develop the existing national guidelines for healthcare engineering apprenticeships and T-levels.
- Establish regional working groups with representation from NHS trusts and boards, professional bodies, employers, and academic partners to address regional needs, including guidance for employers and prospective apprentices.
- Align the workforce framework of the NHS Long Term Workforce Plan with EngineeringUK's future skills policy.
- Mandate guideline adoption by all NHS trusts and boards and providers offering engineering apprenticeships.
- Monitor progress and awareness via NHS digital workforce dashboards and annual employer/apprentice feedback surveys and NHS workforce surveys.
- Update existing programmes by 2027, with CPD opportunities for current professionals.

- Assess digital competency via national skills audits and employer feedback.
- Develop rapid conversion courses modeled on successful NHS clinical psychology transitions.
- Disseminate materials to schools and colleges via NHS careers services, digital platforms, and academic outreach.

3.1.2 RECOMMENDATION: FUNDING AND EMPLOYER SUPPORT FOR APPRENTICESHIPS

Increase funding and employer support for engineering apprenticeships, including targeted salary subsidies and travel allowances, to reduce financial barriers for SMEs and NHS trusts in underserved regions. This is strategically important for healthcare where the majority of UK MedTech companies are SMEs, and strengthening the engineering talent pipeline is essential to support the government's ambition to grow the sector and support NHS adoption of advanced technologies.

Government, Healthcare

Policy development:

- NHS trusts and boards should ringfence additional funding for investment in healthcare engineering apprenticeships.
- Revise apprenticeship funding rules to reflect the true cost of placements in clinical environments.¹⁰
- Introduce targeted grants and employer support packages specific to the MedTech industry.
- Review uptake and completion quarterly to inform regional resource allocation.

3.1.3 RECOMMENDATION: ROLE PROFILES FOR HEALTHCARE ENGINEERING CAREERS

Define and publicise nationally recognised role profiles for engineering careers in healthcare, reducing confusion over job titles and responsibilities and supporting systematic career progression.¹¹

Healthcare, Professional Engineering Institutions

Policy development:

- NHS employers and professional bodies should collaborate to create and disseminate clear role profiles, mapped to new Higher Technical Qualifications (HTQs) and digital credentialing frameworks.
- Ensure profiles are widely available to employers, educators, and prospective candidates.
- Review and update profiles biennially in line with technological and regulatory changes.

3.1.4 RECOMMENDATION: STRENGTHEN PROFESSIONAL REGISTRATION AND RECOGNITION

Promote professional registration for clinical technologists and engineers, leveraging both voluntary and statutory pathways, to raise the profile of engineering careers and align with clinical scientist standards.¹²

Healthcare, Professional Engineering Institutions

Policy development:

- NHS trusts and boards and professional bodies should incentivise and support registration through mentorship, funding for fees, and CPD opportunities.
- Launch awareness campaigns and embed registration encouragement in career development frameworks.
- Track and report registration rates annually.

3.2 Integrating engineering into a technologically advanced and sustainable NHS

As the NHS accelerates its digital transformation and pursues ambitious Net Zero targets, the integration of engineering expertise into all aspects of care delivery has never been more critical. Delegates identified challenges in equipping engineers with digital and data skills, ensuring the safe transition of technology into home and community settings, and embedding sustainability principles at every stage of education and practice. The absence of board-level engineering leadership and limited cross-disciplinary collaboration further constrain the sector's ability to innovate and adapt. These challenges require coordinated policy action to align technical capability with the NHS's strategic vision. The recommendations below are crafted to position engineering at the heart of the NHS's digital and environmental transformation.

3.2.1 RECOMMENDATION: NATIONAL SAFETY PROTOCOLS FOR COMMUNITY AND HOME USE

Develop wider national protocols for the safe deployment, calibration, and maintenance of medical equipment in home and community settings, which must be included in the existing ISO 13485 and NHS safety standards as care shifts from acute to primary and home environments.

Healthcare, Industry

Policy development:

- The NHS, in collaboration with the Medicines and Healthcare products Regulatory Agency (MHRA), the professional bodies and the British Standards Institute, should lead the development of these protocols.
- Issue protocols to all NHS trusts and boards, with mandatory staff training and certification.
- Conduct annual compliance audits and update protocols as technology evolves.

3.2.2 RECOMMENDATION: BOARD-LEVEL ENGINEERING LEADERSHIP

Mandate the appointment of a chief engineer or equivalent at board level in every NHS trust and board, responsible for digital innovation, estates, and delivery of Net Zero and Green Plan objectives.

Government, Healthcare

Policy Development:

- Amend NHS board governance standards and job descriptions by 2027.
- Require annual reporting on board composition and sustainability outcomes.
- Link board-level engineering leadership to Green Plan compliance and digital transformation KPIs.

3.3 Implementation roadmap and cross-sector collaboration

Even the most robust policy frameworks and technical solutions can falter without effective implementation and genuine collaboration across disciplines and sectors. The roundtable raised the need for structured forums, joint training, and pilot projects to break down persistent silos between engineering, IT, clinical, and estates functions. Moreover, involving patients and the public in the co-design of solutions is essential for acceptance and impact. Finally, robust measurement and benchmarking systems are required to track progress, share best practice, and ensure continuous improvement. The following recommendations provide a practical roadmap for operationalising policy, fostering collaboration, and embedding a culture of learning and accountability across the healthcare engineering ecosystem.

3.3.1 RECOMMENDATION: CROSS-DISCIPLINARY COLLABORATION

Facilitate structured collaboration across engineering, IT, clinical, and estates functions, using joint training, secondments, and pilot projects to break down silos and accelerate innovation.

Healthcare

Policy Development:

- The NHS to fund and coordinate joint programmes under the Digitise, Connect and Transform strategy.¹³
- Evaluate outcomes through staff feedback, project delivery, and published case studies.

3.3.2 RECOMMENDATION: CO-DESIGN AND PATIENT PARTNERSHIP

Building on current programmes where patient and public involvement is widely embedded across UK initiatives, co-creation and designing with people early and iteratively should become the default approach, ensuring solutions are shaped in genuine partnership from the outset.¹⁴

Government

Policy Development:

- The NHS must require MedTech manufacturers to embed best practice co-design frameworks into their manufacturing processes and provide dedicated resources for engagement.
- Regular reporting on engagement activities and patient experience metrics must be reported to the NHS in a similar manner to Net Zero metrics.

4 REFERENCES

¹ Institution of Mechanical Engineers. (2024). *Transforming Healthcare: The role of engineering in delivering a Net Zero Health Service*. <https://www.imeche.org/policy-and-press/reports/detail/transforming-healthcare-the-role-of-engineering-in-delivering-a-net-zero-health-service>

² Institution of Mechanical Engineers. (2025). *Automating the home – Robotics in healthcare*. <https://www.imeche.org/policy-and-press/reports/detail/automating-the-home>

³ NHS England. (2025). *Green Plan Guidance*. <https://www.england.nhs.uk/long-read/green-plan-guidance/>

⁴ NHS England. (2025). *Five years of a greener NHS: progress and forward look*. <https://www.england.nhs.uk/long-read/five-years-greener-nhs-progress-forward-look/>

⁵ NHS England. (2023). *NHS Long Term Workforce Plan*. <https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/>

⁶ Department of Health and Social Care. (2025). *10 Year Workforce Plan*. <https://www.gov.uk/government/calls-for-evidence/10-year-workforce-plan>

⁷ Department of Health and Social Care. (2025). *10 Year Health Plan for England: fit for the future*. <https://www.gov.uk/government/publications/10-year-health-plan-for-england-fit-for-the-future>

⁸ Welsh Government. (2023). *Digital and data strategy for health and social care in Wales*. <https://www.gov.wales/digital-and-data-strategy-health-and-social-care-wales-html#127657>

⁹ Scottish Government. (2021). *Digital health and care strategy*. <https://www.gov.scot/publications/scotlands-digital-health-care-strategy/>

¹⁰ Department for Education. (2025). *Guidance: Apprenticeship funding rules and assessment plan guidance, 2025 to 2026*. <https://www.gov.uk/government/publications/apprenticeship-funding-rules-2025-to-2026>

¹¹ Kings Fund. (2025). *Securing the NHS workforce for the future: our recommendations for action*. <https://www.kingsfund.org.uk/insight-and-analysis/long-reads/securing-nhs-workforce-future-recommendations-action>

¹² NHS Scotland. (2025). *How to become a clinical engineer*. <https://www.careers.nhs.scot/explore-careers/healthcare-science/engineering-sciences/clinical-engineer/>

¹³ NHS England. (n.d.). *Transformation Directorate – Digitise, connect, transform – Guidelines for digitised healthcare*. <https://transform.england.nhs.uk/digitise-connect-transform/>

¹⁴ NHS England. (2017). *Patient and public participation equality and health inequalities*. <https://www.england.nhs.uk/publication/patient-and-public-participation-equality-and-health-inequalities/>

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