The Royal College of Pathologists
Pathology: the science behind the cure

The Royal College of Pathologists' response to the Scottish Government Future Medical Workforce Project: call for evidence

September 2025

Overview

Pathology is vital to Scottish healthcare, supporting 95% of patient pathways – across 17 specialties – through screening, diagnosis, treatment and monitoring. However, services face strain due to understaffing and limited funding.

Pathology services are central to delivering the shifts identified in The Population Health Framework for Scotland (2025–2035) and The Health and Social Care Service Renewal Framework (SRF) – including prevention, early intervention and community-focused, patient-centred care. These reforms will increase demand on the pathology workforce. In line with the RCPath Workforce Strategy, initiatives are needed to train, retain and reform the workforce, alongside contingency measures that prioritise patient care by making the most efficient use of the workforce.

The pathology workforce in Scotland[1]

The RCPath 2025 Workforce Census highlights significant UK-wide challenges for the pathology workforce.[i,ii] There are looming retirements and widespread concerns about the profession's ability to sustain services in the face of persistent workforce shortages.

[1] Pathology workforce in Scotland encompasses the total laboratory medicine workforce including medically and scientifically trained pathologists, working across all areas of pathology.

In Scotland, 39% of pathologists responded to our census.

- 74% say staffing levels are inadequate to ensure long-term stability of pathology services.
- In a typical week, nearly 60% work beyond the number of hours stated in their contract.
- Nearly half always or often feel stressed at work – and job satisfaction has declined by 43% over the past year.
- Top factors negatively impacting wellbeing at work were excessive workload (49%), insufficient staffing (46%), administrative burden (44%), poor workplace morale (35%) and obstruction by senior management (32%).[2]
- Scotland had the largest gap between the number of pathologists that felt supported at a departmental level (74%), and those that felt supported at an organisation level (21%).

The Scottish Pathology Network (SPAN) benefitted from over 10 years of benchmarking workload data showing growth in testing for cancer, increased workload demand and slower reporting due to workforce stasis or decline due to vacancies. The most recent workload dashboard 2023–2024 shows that since the last financial year:

- histopathology requests increased 6.4% to 317,000
- 6.9% of histopathology requests were reported in 3 calendar days (↓22.7%) and 28% were reported in 7 calendar days (↓8.2%)
- pathology medical headcount increased by 2%.[iii]

Despite growing expectations for timely, accurate diagnosis in line with new standards and guidelines, the workforce has expanded slowly. Reviews of Scotland's future lab workforce[iv] have highlighted a persistent mismatch between workforce and workload demand – resulting in worrying delays in diagnosis and treatments for patients.

[2] Respondents were able to choose multiple options.

Response to questions

1. Prevention and early intervention

- **How can innovation support early detection and management of long-term conditions?**
- **What new models or tools will support doctors to provide care and improve health outcomes?**
- **What would support a move towards preventative care, and how might prevention-focused workforce differ from our current model?**

Redeveloping testing and reporting pathways to enable efficient and accurate laboratory diagnostic services – for example, advances in screening tests and enabling patient-centric and community-based sampling – are vital to improving health outcomes.

Both clinical and laboratory elements of pathology are key to preventative strategies in cancer, obesity, cardiovascular disease, infection and others. Timely access to modern diagnostic pathology services, such as genomics, will be essential.

Pathologists play a central role in developing safe, effective services. Examples are in sections 2–5. Recommended actions are in section 6.

2. Person-centred and value-based care

- **What is the role of a medical professional in supporting individuals to manage their own health and care, and how might technology influence this?**
- **What innovations can support services to move towards person-centred care?**

RCPath welcomes Scotland's commitment to realistic medicine through personalised, equitable healthcare.[v] Pathologists contribute to diagnostic stewardship by guiding clinicians and patients to help them seek the right test at the right time – and helping patients understand testing, results, and the pathologists' role in diagnosis and prevention. With rising self-testing and results being sent directly to patients, pathologists must be involved in developing, validating and verifying tests. Prevention of harm is essential, as

highlighted in the recent BMJ article identifying that many home tests are not fit for purpose.[vi]

Pathologists drive innovation, and investment in research is needed for both technological and non-technological advances to be made. A key example is the emergence of self-injectable glucagon-like peptide-1 (GLP-1) agonists for obesity, which is seeing potential impacts on large numbers of the previously underserved population.[vii] Chemical pathologists were instrumental in research and clinical trials and are now involved in delivering and monitoring this therapy.

Expanding genomic testing also has huge potential to enable patients to receive care aligned with their individual needs – particularly for diagnosis and treatment options in cancer patients and families at-risk from cancer and cardiac disease resulting in sudden unexpected death. However, lack of investment and inadequate workforce limits access to diagnostic and management opportunities for people living in Scotland.

Meaningful person-centred care cannot be achieved if underlying workforce and governance structures are neglected. High-quality systems depend on expert pathologist oversight and time. For example, in Lothian, prostate cancer recurrence monitoring by prostate-specific antigen (PSA) testing was being inaccurately interpreted due to an absence of systems linking data around a patient's history of prostatectomy and correctly interpreting a PSA value on the patient. While the laboratory analysis and testing pathway was high quality, the overall system in which the test was being used was flawed and would 'miss' a patient's cancer recurrence. This was rectified only when a chemical pathologist reviewed clinical governance and whole system capacity review.

Workforce shortages – e.g. where only 2 whole-time equivalent (WTE) immunology consultants serve the entire Scottish population – threaten foundations of patient-centred care. Investment in innovation must be matched by investment in core pathology capacity, including research and governance. Without this, innovation risks outpacing the system's ability to deliver these innovations safely and equitably.

3. Community-based service delivery

- **What approaches have shifted/could successfully shift care from acute settings to communities and what does this mean for our medical workforce?**
- **How will technology/innovation support the shift of care from hospital to community?**
- **How can technology or service redesign improve access to medical care services in rural and island areas?**

As care shifts from hospitals to communities, pathology will be key to supporting diagnosis and treatment in GP practices and homes. Increased community activity means more testing, faster diagnoses and improved patient flow. Collaboration between Scotland's services is essential to ensure remote and rural areas can access high-quality, specialised diagnostics.

Point-of-care testing (POCT) provides an opportunity to enable timely dosing decisions, as highlighted by benefits in clozapine blood monitoring requirements for people with schizophrenia.[viii] Challenges exist including connectivity – the Scottish POCT Lead has identified IT system connectivity as a key challenge to implementation[ix] – and costs, meaning not all who could benefit from POCT can access it. Quality assurance is a further area for development.[x]

Direct-to-consumer testing presents opportunities and potential benefits, although further investigation, including around quality, appropriateness and end-to-end care, is needed.[xi,xii]

Patient-centric sampling – for example, capillary blood sampling – are vital to improving access by sampling in a way that suits the patient, and consequently patient outcomes. This requires well-designed testing pathways and improved infrastructure – digital and non-digital modalities alike.

4. Population planning and equity

- **How can we improve the use of data and evidence to plan services based on population need?**
- **What innovations address health inequalities and improve access for underserved groups?**

Scotland's geography adds pressure to an already small pathology consultant workforce, with patients often moving between centres for care. Interoperable IT systems are needed to ensure patient data is accessible across platforms – improving care consistency and reducing inequalities – as in Cambridge.[xiii]

Health inequalities persist across race, age and deprivation. For example, bowel screening uptake ranges from 53% in the most deprived to 75% in the least.[xiv] Scotland's health screening strategy 2023 to 2026[xv] to address inequality is welcome, but increased workforce capacity is essential to support expanded testing.

Pathologists help patients develop tools and knowledge to engage in their healthcare, but they also need the time to provide holistic support. Embedding them in service design and population health teams would help tackle inequalities.

5. Digital transformation and AI

- **What digital tools or platforms have improved care coordination and outcomes?**
- **How can AI be safely and ethically used to support diagnosis, triage or resource planning?**
- **What are the barriers and enablers to digital inclusion in health and social care?**
- **What skills will our workforce require to support this?**

Technology has an increasingly important role in progressing pathology. Digital tools, automation and potentially AI are key to a modern, efficient, cost-effective and joined-up diagnostic pathology services, but many rely on antiquated technology. Urgent investment is needed to modernise IT, standardise test coding and terminology, and ensure

interoperability – especially through integrated electronic patient records, alongside patient-facing NHS Apps.

Remote working has improved collaborative ways of working. This allows pathologists to seamlessly communicate with colleagues and other clinicians, helping increase access to care for patients in rural areas. This should continue to be encouraged and developed.

Research has shown how AI can be used to drive efficiencies in cancer diagnosis with the potential to make processes more efficient, resulting in better patient outcomes.[xvi] While research is promising, critical to success is translation into practice with safeguards around confidentiality, regulation and standards for AI use.

The shift to AI will need significant investment in pathology at a level beyond the current reality, when basic IT functions are struggling to work. A major barrier to progress is space – buildings are largely unable to accommodate the equipment required – and pathologists lack resources, time and capacity to implement this technology into services and training. Data storage costs – both financial and environmental – must also be considered.

The intelligent liver function test (iLFT) – developed in Scotland – is an example of how 'intelligent' laboratory medicine can not only provide accurate and reliable test results, but aid directly with interpretation and diagnosis results.[xvii] Such intelligent platforms should be trialled and expanded to appropriate new disease areas as a matter of priority – to aid the wider range of professionals ordering and interpreting lab results, to increase healthcare efficiency by reducing unnecessary and duplicate testing and, ideally, to provide results directly to patients, alongside patient-appropriate interpretations. This is integral to providing the comprehensive, patient-centred precision medicine platforms of the future, essential for an increasingly complex, ageing and multimorbid global population.

6. Workforce enablement/impact

- **What innovations support workforce wellbeing, efficiency and collaboration?**
- **How can training and development be adapted to support new models of care?**
- **How will technology/innovation impact the role of the doctor over the next 20 years?**
- **In your specialty, how will or could the role of the consultant/general practitioner change in the next 20 years? What will be required to enable that change?**
- **How will AI/digital technology impact the current role/workload of doctors in this specialty?**

Pathology workforce numbers are dangerously low. Pathologist and scientist shortfalls range from around 15–40% depending on specialty and are projected to increase 20% over the next decade. More resident training posts, better consultant training capacity and retention efforts are urgently needed. Innovation and technology can support, but not replace, pathologists.

AI and digital tools in NHS laboratories may mean that pathologists are able to offer enhanced and more efficient services in many areas – e.g. improved test turnaround times meaning faster diagnosis. Routine work may be better automated, leaving more complex nuanced cases as the focus of specialist pathologists' work. It could further increase capacity for numbers of tests as well as newer repertoires of tests. As the demand for screening and diagnostic tests rises with time, the role of pathologists in implementing well-governed laboratory practice that is fit for purpose and ensures patient safety is crucial – and is even more pertinent in the era of validating new testing modalities and technologies.

Flexibility, connectivity and efficiency are key to addressing Scotland's pathology workforce crisis. Supporting NHS pathology training and encouraging more doctors into pathology is essential. Less than full time (LTFT) working requires adaptable training and employment models.

Train

Training posts have remain underfilled in recent years (Figure 1). In 2024, the advertised training post fill rate was 0.79. Low fill rates coupled with minimal growth in training posts threatens the long-term pathology workforce sustainability. It takes 8–10 years for a new medical graduate to train as a pathologist, so immediate action is needed to meet current and future workforce demand.

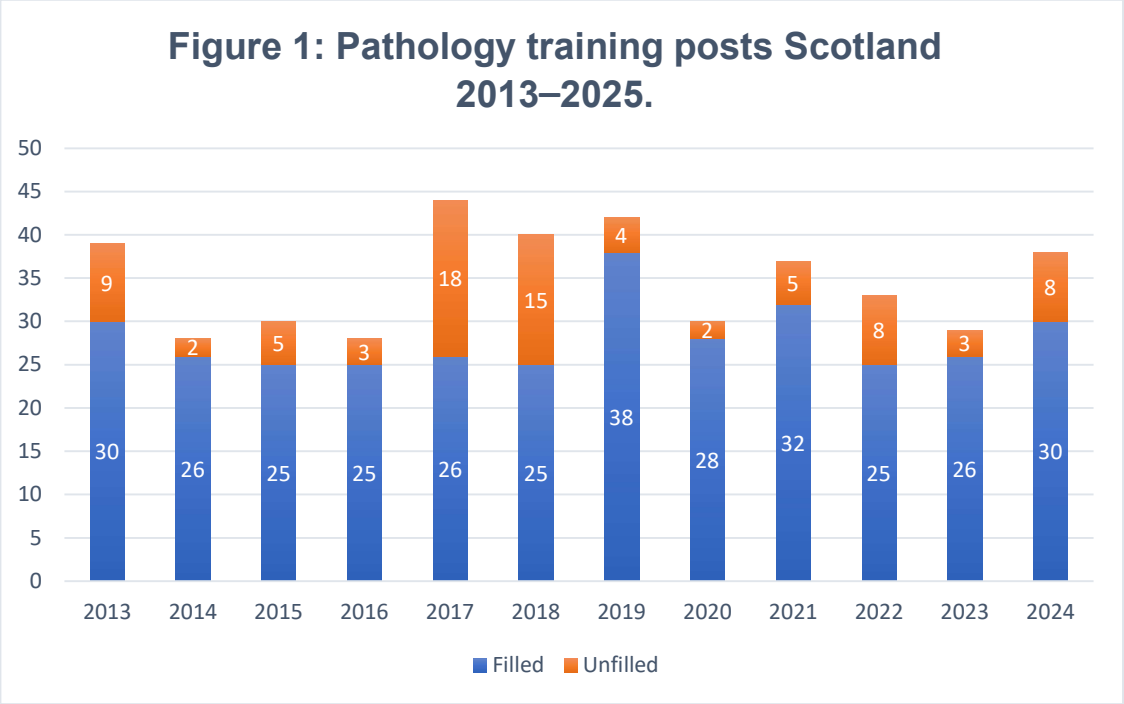

Figure 1 Source. Scottish Medical Training;[xviii] Internal College data.

Pathology relies on both medical and scientific staff. Expansion in pathology demand must be matched by expansion in training and substantive scientist posts in Scotland. This is important for the direct impact of increased volumes of testing, and to enable scientists to train and expand their practice. A well-qualified, well-resourced and diverse range of medical, scientific and other health professional roles working together as an integrated team is vital to address workforce shortages and deliver high-quality care.

Training must keep pace with technology, supported by investment in equipment and time for staff to learn and apply new tools effectively.

Action required:

- invest in new training posts – and expand consultant training capacity
- invest in facilities and IT to expand training opportunities
- commit funding for consultant posts so that those completing training can secure employment
- develop a dedicated Scottish pathology workforce strategy to fill vacant training posts, vacant consultant posts and retain the current pathology workforce
- continue medical locum appointment for training (LAT) posts in Scotland to help fill training vacancies and support LTFT and flexible training
- fund the Higher Specialist Scientist Training (HSST) pathway for clinical scientists in Scotland to train toward FRCPath – currently unavailable in Scotland.

Retain

Pathologists require appropriate and supportive working environments to perform effectively. Many pathology departments are understaffed and located in dilapidated buildings that are not fit for purpose, limiting progress in digital and automated technologies and impacting staff morale and wellbeing.

Action required:

- improve efficiency by increasing administrative staff to work alongside medical and scientific staff who run the laboratories and implement systems that reduce bureaucracy
- increase protected time for consultants to undertake professional development including research, development, innovation, quality improvement and training.

Reform

Planning for automation, digital and AI innovations in pathology workloads must be informed by robust workforce modelling and planning in Scotland.

Workforce research should form a crucial part of all workforce planning – focused on roles, the environment and ways of optimising these components. This provides an evidence

base for educational practice, including postgraduate and continuing professional education. Benefits include improved learning, better outcomes, focused use of resources, more satisfied workforce, improved productivity and better patient outcomes.

Action required:

- Scottish government to commit to pathology workforce modelling for now and in the future – based on the work to be done, the current workforce and how best to deliver the service. This should identify service pressures and distribute the workforce and training posts into local regions where they are most needed – noting that different specialties and regions will require different solutions to attract and recruit.
- strengthen multidisciplinary collaboration to improve communication across patient pathways – general practice, outpatient, hospital, treatment and recovery, back to home – to ensure efficient investigation and treatment routes and support shifts to community care
- invest in upskilling professionals to support greater use of genetic and molecular testing
- improve awareness of the vital role of pathology in diagnostics, treatment and monitoring across the Scottish health system
- improve interoperability of IT systems and implement digital pathology to enable consideration of safe, efficient use of AI
- improve timely access to personalised cancer testing in Scotland.

Prioritise patient care (contingency)

Diagnostic stewardship ensures that scarce pathology resources, including workforce, are used efficiently. Patient-centred care requires supporting services to prioritise tests that offer the greatest value and benefit to patients.

Action required:

- continue work to improve pathology classifications and pathology standards implementation, as well as enhanced development of realistic medicine initiatives.

Contact details

This response was collated by the Workforce and Engagement team within the Professional Practice Directorate of RCPath informed by the Scotland Regional Council.

Please contact the College if you have any questions:

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About the Royal College of Pathologists

The Royal College of Pathologists is a professional membership organisation with more than 11,000 fellows, affiliates and trainees, of which 23% are based outside of the UK. We are committed to setting and maintaining professional standards and promoting excellence in the teaching and practice of pathology, for the benefit of patients.

Our members include medically and veterinary qualified pathologists and clinical scientists in 17 different specialties, including cellular pathology, haematology, clinical biochemistry, medical microbiology and veterinary pathology.

The College works with pathologists at every stage of their career. We set curricula, organise training and run exams, publish clinical guidelines and best practice recommendations, and provide continuing professional development. We engage a wide range of stakeholders to improve awareness and understanding of pathology and the vital role it plays in everybody's healthcare. Working with members, we run programmes to inspire the next generation to study science and join the profession.

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