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

NHSE 10-year plan consultation 2024

Royal College of Pathologists' submission

Q1. What does your organisation want to see included in the 10-Year Health Plan and why?

Pathology is essential for healthcare, vital for patients and a cornerstone for the 10-year plan.

Pathology services are increasingly failing and in crisis due to a lack of capacity, staff and equipment, and outdated facilities and IT. Given the predicted increase in demand for pathology services going forwards, the associated fall in capacity will result in a significant pathology bottleneck and barrier to all healthcare, undermining the aims of the 10-year plan.

While this submission focuses on England, the Royal College of Pathologists (RCPath) represents the whole of the UK and the issues largely remain the same across it.

We call for the following.

Investment in the pathology workforce

Pathology workforce numbers are dangerously low across the UK and some services have collapsed (e.g. paediatric pathology) or are on the verge of doing so (e.g. neuropathology, forensic pathology and immunology). Smaller specialties are particularly at risk and there needs to be national coordination and workforce planning to avoid them disappearing altogether. Our data show these issues will get significantly worse over the next decade.

The 10-year plan needs to ensure robust workforce planning for pathology, enabling sufficient training opportunities across all 17 specialties, with the necessary expansion in consultant posts to safeguard patient care. Vacancy rates across our specialties range from around 15–30% and we forecast this will increase by 20% over the next 10 years. When factoring in the increasing demand our members are experiencing, this significant shortfall needs to be met by increasing training places by around 150 across pathology specialties in England within 2 years. While digital pathology will be an enabler for enhanced productivity in pathology, it will not be the panacea (see below) to solve the workforce shortfalls.

Patient pathways and waiting list reduction

Pathology is a crucial service that is intimately linked to clinical care within the NHS. Cellular pathology, for example, has major roles in diagnosis, for both cancer and non-cancer related diseases. As well as initial diagnosis, cellular pathology is crucial in determining patient prognosis and treatment strategies, together with patient monitoring. Advances in and expansion of other specialties that utilise cellular pathology are rarely paralleled by increased resource for cellular pathology and other pathology services. This can block the reduction in waiting list times across the spectrum of medicine, particularly in cancer services. All pathology disciplines are involved in cancer pathways. It is important that all of these are properly funded and supported to prevent pathology becoming the main cause of bottlenecks and delays in the cancer pathway.

Investment in pathology estate

Many pathology departments are located in dilapidated buildings that are below the necessary standards to deliver safe and efficient services and safeguard staff wellbeing. Our members tell us they are not they suitable for developments in digital technology and automation, and a lack of appropriate space for staff and facilities means that expansion of training opportunities for pathologists and scientists is not feasible. In many cases, it is the direct cause for preventing expansion. Poor transportation infrastructure limits sample transfers, impacting turnaround times and extending the duration of patient pathways. Urgent action is needed to improve the estates – particularly for mortuary, blood sciences and genomic services – in the interests of patients.

Investment in pathology IT, digital, AI and automation

Wider use of digital, automation and AI has the capacity to make processes more efficient, increase productivity and enable easier sharing and incorporation into future electronic patient records. However, our data show they are not a replacement for staff, nor are they a solution to the worsening workforce crisis. Some pathology services are already benefiting from new IT systems and the digital pathology roll out, but true interoperability and the efficiencies that this brings have rarely been achieved. The COVID-19 pandemic highlighted a need to develop a plan for improving diagnostic capabilities at short notice, with rapid expansion of laboratory diagnostic services, including staffing. This approach needs to be harnessed for the future in the interests of patients. There are significant disparities across regions and specialties and this needs to change. There needs to be investment in the development of diagnostics and IT infrastructure to ensure the provision of accurate results for patients regardless of where they live. There is a lack of investment both for implementation and the IT support staff needed (including pathology informaticians). In addition, the absence of a robust national programme for standardisation and interoperability, once again, limits progress to join up services. Only once all these issues are addressed can the AI-related opportunities with digital pathology be realised.

Reducing new pathology test/analyser implementation red tape

During the COVID-19 pandemic, there were flexible mechanisms for rapidly introducing innovation and new tests, which benefited patients and saved countless lives. We need to harness this approach to avoid the blocks and remove ‘red tape’ that currently exist, even for new ‘no brainer’ tests and those advocated by NICE guidance. For example, our members tell us it took 20 years to get widespread adoption of natriuretic peptides across the NHS in the current system. This is a simple and cost-effective test that reduces the financial and resource burdens on the wider NHS and improves patient care. Pathology ‘silo budgets’ with limited flexibility hinder implementation, even when financial gains would be experienced across the wider NHS or bring about significant benefits to patients. There is an urgent need to develop ring-fenced funding mechanisms to ensure implementation, ongoing revenue and staffing costs are funded on a national basis to address the issues outlined above.

Infected blood inquiry recommendations

Given the importance of the infected blood inquiry findings, it is important that sufficient attention and investment is given to allow rapid implementation of the recommendations – especially those impacting the laboratory-based aspects and interoperability concerns.

Contingency planning

Pathology services are increasingly at risk from cyber-attacks, infrastructure failure, supply chain issues and regulatory changes. A lack of spare capacity and IT interoperability across services means that these services do not have flexibilities or contingencies and so pose significant risk to their organisations. The significant impacts of the cyber-attack in south-east London in June 2024 that knocked out pathology services is still affecting patient care. Robust contingency plans need to be developed that incorporate ready-to-go, workable solutions for services that provide enough capacity and interoperability to facilitate service sustainability.

Clinical and biomedical scientists

Pathology services are dependent on not just medically trained pathologists but also the scientific workforce. It is vital that the expansion we are seeing in pathology demand is also matched by the necessary expansion in training and substantive scientist posts. This is important not just for the direct impact of increased demand but also 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 to provide the best service for our patients.

NHS research, development and innovation

Pathologists working in the NHS need to have ringfenced time for research, training, clinical trials, innovation and professional body work. A good example of the benefits of this is the implications of whole genome sequencing in preventative healthcare and newborn screening. Evolving the genomic service through cutting-edge science, research and innovation will ensure that patients can benefit from the rapid implementation of these advances. Better triangulation of academia with NHS pathology and industry will be an important enabler for these areas. The demise of academic pathology seen in recent years

needs urgent attention, given the importance of pathology in all healthcare research. Future services delivery models need to be focused on more than just delivering test results – teaching, training, research, innovation and national work all need to be incorporated and protected.

Q2. What does your organisation see as the biggest challenges and enablers to move more care from hospitals to communities?

The concept of moving more elective care to the community to help reduce waiting lists needs to ensure that the change in activity for pathology services is considered. Such a shift to community-based healthcare will see an increased demand placed on pathology services, both because of increased healthcare activity and a likely demand for more point of care testing (POCT) across clinics, GP practices, community diagnostic centres and patients' homes. The challenges and enablers around this shift in relation to pathology would be as follows.

Increased demand on pathology

More healthcare carried out within the community will inevitably increase pathology test volume. This will further contribute to the significant imbalance between capacity and demand that pathology is already facing. To enable this shift and ensure that pathology's essential role can be facilitated, it would need significant investment in workforce, infrastructure, estate and IT/digitisation/interoperability. Without these, pathology services will be unable to meet the needs of this desired community-based healthcare shift.

Point of care testing

Technological advances have allowed the rapid development of a wide array of POCT options for use in the community. Executing such POCT testing across community-based healthcare and even in patients' homes will enable much efficiency to be activated within the system – true 'one-stop diagnostic shops' would become a reality. That said, a lack of funding for such POCT services, insufficient staff to support and poor IT connectivity would risk the introduction of unsafe and inappropriate services for patients. The general lack of governance, accreditation and alignment with professional body guidance on safe and

appropriate POCTs also remains a major concern. A lack of regulation on quality, accuracy and clinical usefulness prevents safe and appropriate POCT, including ensuring that staff are trained and aware of the best use guidance.

Direct to consumer testing

Empowering patients to take an interest in their own health can be enabled by appropriate diagnostic testing and screening that can be initiated and carried out in their own homes. This is, however, challenged by the rapid expansion of largely unregulated, poor-quality devices and services seen in recent years. This can further worsen health inequalities and lead to an unnecessary additional burden on stretched NHS services, as worried patients search for explanation of their test results and drive further unnecessary investigations. There needs to be careful thought and planning given to how these services are regulated, how the tests are assessed and the downstream impact on the NHS.

Diagnostic stewardship

As community-driven diagnostics expands, there is a risk of further over-testing. Diagnostic stewardship approaches will be a major enabler to ensure inappropriate testing is minimised. However, it will be challenged by the lack of pathology IT systems with the necessary functionality, standardisation and interoperability needed to deliver this efficiently and effectively.

Interoperable pathology IT

The delivery of pathology for community-based healthcare will require interoperable, standardised services that can seamlessly connect healthcare activity with pathology labs and back to electronic patient records, clinical databases and patient-facing apps. The absence of such systems remains a major challenge, increases the resources required to safeguard patients and presents a risk to patients receiving timely and effective care. Investment and rapid implementation of digitised, standardised and interoperable services with the functionality to deliver diagnostic stewardship will be necessary to enable community-based healthcare to function efficiently. Laboratory information management systems need to be interoperable and use standardised nomenclature and coding to enable seamless transfer and sharing of pathology information across the whole of the NHS, including developing electronic patient records and federated data platforms.

Sample transport logistics

More community-based healthcare will require an expansion of transport services to ensure appropriate and rapid transfer of pathology samples to central laboratories for analysis. Dedicated pathology-focused services may be required, especially if existing sample transport mechanisms are fragile and unreliable. Sample to result turnaround times will be important in these settings.

Specific community-based, pathology-led services

Many pathology-based, patient-facing services can be delivered in the community. Examples are outpatient parenteral antimicrobial therapy (OPAT) services and at home parenteral nutrition services. Many other examples are primed for similar community-based delivery, such as tier 3 obesity, cardiovascular risk and allergy services. Pathology services would require additional expansion in both personnel and resources to support such activities and the testing infrastructure needed.

Q3. What does your organisation see as the biggest challenges and enablers to making better use of technology in health and care?

Technology is key to modern, efficient, joined-up diagnostic pathology services, but many pathology services rely on antiquated technology. Pathology services urgently need to be modernised to allow more efficient, cost-effective processes and support digitisation, interoperability and standardisation. This will allow pathology requesting and reporting to occur seamlessly and be integrated across the rest of healthcare. There is significant potential for AI to contribute to efficiency and increased productivity in digital image interpretation and assist in clinical decision support, but it will not be the solution to the worsening workforce crisis. Insufficient numbers in the pathology workforce will continue to slow down the implementation of both digitisation and AI and, in some instances, make it impossible, amplifying patchy health inequalities across the country. Technologies such as digital pathology and AI and increased availability and uptake of post-mortem CT scanning will also be important to ensure viable forensic and coroner-based death investigation systems that can cope with the predicted workforce–workload imbalance.

The following areas are important.

Automation expansion

Technology has expanded over several decades to enable the development of auto-analysers, robotic tracks and aliquoting systems. These have revolutionised pre-analytical and post-analytical processes across blood sciences. Similar pre-analytics are now possible across histopathology, which will be a major enabler of more efficient processes, reducing turnaround times and increasing productivity. Failure to develop and implement such automation would pose a significant challenge in the quest for more efficient, cost-effective processes needed to keep ahead of increasing workloads.

Interoperable standardised IT systems

A lack of standardisation of test codes, nomenclature and units of measurement has provided a significant challenge for the interoperability of pathology test results between labs, electronic patient records and other downstream databases. The development of standardised systems that are truly interoperable will be a major enabler for sharing of pathology material and the integration of results into healthcare-wide patient records. Such standardised systems would also enable national data collection for business intelligence, clinical and research purposes.

Digital pathology

The development of digital pathology systems to replace glass slides and microscopes in cellular pathology, haematology and other disciplines has revolutionised practice and enabled more efficient services to develop. But digital pathology rollout has been patchy and many areas have not benefited from these changes. Digital pathology development needs to be consistent across England to provide strong foundations for future developments in AI. Capital investment also needs additional ongoing revenue budget allocation to cover the significant running costs including image storage (which are significantly larger than those required for other diagnostic specialties, such as radiology).

Diagnostic stewardship

Appropriate test requesting is going to be vital in the future to ensure unnecessary testing does not harm pathology capacity and to safeguard patients from further unnecessary downstream interventions. Functional IT systems will be a major enabler of good

diagnostic stewardship practice. Failure to develop and implement the necessary IT systems incorporating automated diagnostic stewardship functionality would pose a major challenge to pathology capacity/demand imbalance and limit improvements in turnaround times, which would be detrimental to patient care.

AI

There is great potential for AI systems to automate, target and bring about more rapid diagnostic interpretation of both digital images and complex numeric pathology outputs. In addition, clinical decision algorithms along patient pathways will enable appropriate cascade testing and fast track patient pathways for cancer and chronic disease management. This will become increasingly important for the complex data being reported from genomic services. Development and implementation of AI is challenged by the slow implementation of both digital pathology and pathology IT systems that are necessary for AI systems to function. AI will not be the solution to the impending workforce crisis in pathology but will make systems more efficient, faster and more productive. The regulation and validation of AI needs to be driven and overseen by pathology professionals, with College involvement.

Point of care testing

Technological advances have allowed the rapid development of a wide array of POCT options. These advances will enable more testing to be carried out closer to the patient in acute settings and across the community, including patient's homes. However, they also bring about huge challenges in ensuring safe and appropriate implementation given the cost of such services and the need for additional pathology staffing to provide the necessary oversight for optimum patient safety and quality.

Q4. What does your organisation see as the biggest challenges and enablers to spotting illnesses earlier and tackling the causes of ill health?

Preventative medicine has been under threat since the pandemic but advances in technology and diagnostic testing, especially in the areas of genomics and proteomics, have radically increased the potential that screening, early diagnosis and monitoring has

for patients. Given that nearly all preventative programmes across healthcare will rely on pathology testing, any expansion of preventative programmes will need expanded pathology services to manage the increased workload that these programmes will create.

The following areas are important.

Patient-facing pathology services

Pathologists, such as biochemists, forensic pathologists, haematologists, immunologists, medical geneticists, and paediatric and perinatal pathologists, are involved in and enable many patient-facing preventive programmes. These include familial hypercholesterolaemia, obesity services and many cancer risk and early diagnosis programmes. Expansion of these type of programmes will be significantly challenged by shortages in pathologists and other key staff involved. To ensure their success, investment needs to be made in the workforce.

Funding of preventative programmes

The majority of healthcare prevention programmes will require pathology services and can only be enabled when such pathology services are appropriately recognised and funded in parallel with the clinical activity.

Screening

Screening is vitally important for prevention and the early detection of preclinical disease at a stage when it can be more effectively treated, or even cured. Pathology services are heavily involved in such screening from before birth until after death. Cellular pathology is critical to cervical and bowel cancer screening programmes; paediatric and perinatal pathology services support parents to understand the reasons for the loss of their child; post mortems help family members' awareness of genetic disorders by identifying inherited diseases through autopsy processes. These services are all at risk if pathology is not supported to deliver them.

Cancer pathways

Screening for, and the early diagnosis of, cancer is pivotal in the delivery of preventative healthcare and is largely enabled by pathology services. A lack of pathologists, biomedical/clinical scientists and other key workers across diagnostics will be a major challenge to expansion of such preventative cancer programmes.

Infection screening and surveillance

Public health services, along with microbiology, virology and infection prevention control services, are vitally important enablers to ensure the necessary screening and surveillance for infectious disease outbreaks and trends can be monitored, picked up early and managed more appropriately. Challenges persist around variability in staffing, equipment and testing repertoires, especially around POCT both in the community and across acute care. Shortages of key clinical and scientific staff need to be supported by other groups, such as data analysts, to ensure complex surveillance data feeds on infection can be rapidly interpreted and acted upon. This includes the surveillance activity needed to monitor water and food supplies.

Genomic services

The demand for genomic services has grown dramatically over recent years. It has been enabled by significant advances in knowledge and developments in technology for carrying out specific analyses. AI will further enable the easier identification and utility of disease-causing, predictive and preventative genetic variants in the future and will substantially improve our ability to use individual patients' genetic information to tailor an individualised solution for them – true precision medicine. Increasing demand on these services driven by both patient demographics and the expanding development of new drug therapies that are allocated subject to genomic output will need further investment in testing capacity. It will also require further investment in the workforce of pathologists, scientists and informaticians. Cancer pathways and precision medicine will be significantly challenged by the failure to incorporate this investment and long-term workforce objectives in the 10-year plan.

Direct to consumer testing

Empowering patients to take an interest in their own health can be enabled by appropriate diagnostic testing and screening that can be initiated and carried out in their own homes. This is, however, challenged by the rapid expansion of largely unregulated, poor-quality devices and services. This can further worsen health inequalities and lead to unnecessary additional burden on stretched NHS services as worried patients search for explanations of their test results and further investigations. There needs to be careful thought and

planning given to how these services are regulated, how the tests are assessed and what the downstream impact on the NHS is.

Drug problem services

The UK has a significant drug abuse/misuse problem that requires the relevant pathology services to better support drug screening, identification and treatment programmes. Current clinical toxicology services across the NHS are largely inadequate to address these challenges, with basic non-specific drug screens rarely backed up by the necessary confirmatory services that are commonly only offered after death. Investment in appropriate drug testing services would enable harm reduction programmes to function more effectively and reduce both morbidity and mortality.

Q5. Please share specific policy ideas for change. Please include how you would prioritise these and what timeframe you would expect to see this delivered in.

Short term (immediately to 2 years)

Pathology needs to be properly resourced with the necessary numbers of scientific, administrative and clinical staff. There needs to be a costed strategy to optimise the skill mix within laboratories such that highly trained clinical staff are not spending a significant amount of their time on clinical administration, which is cost ineffective and removes the resources needed to safeguard patients.

Increased training and substantive consultant posts for pathologists and scientists

There needs to be an immediate increase in the training opportunities across pathology, with an appropriate increase in consultant posts to ensure the investment in training isn't wasted and that there are guaranteed jobs available to help deliver safe and effective patient care. The pathology workforce is already in crisis; given it takes roughly 8–10 years for a new medical graduate to complete training to be a pathologist, urgent action is needed now.

Retention of existing trainees and staff

The current pathology workforce has been working beyond capacity for many years and staff are burnt out. There needs to be a properly considered and effective retention plan for trainees and consultants to ensure there aren't further unnecessary workforce losses. Those who are training the future pathology workforce need to be properly supported and time must be protected for this vital function.

IT, digital pathology and automation roll out

Pathology needs a fully costed and planned rollout of interoperable/coded IT systems, digital pathology and automation to enable the delivery of patient pathways. This needs to include recruitment of IT support staff needed (including pathology informaticians) and consideration for NHSE standardised terminology and Fast Healthcare Interoperability Resources messaging for pathology reporting.

Robust contingency plans

These are vital to safeguard services in the event of service failure, cyberattack or severe staff shortages. Wider healthcare provision and patient safety is at considerable risk when pathology services are unable to function. Additional focus needs to be resurrected around pandemic preparedness contingencies, especially with regards to UKHSA and microbiology and virology services.

Diagnostic stewardship

A joined-up, locally led approach to diagnostic stewardship needs to be developed and encouraged. This needs input from across the clinical spectrum and also include management and finance officers. National guidance on appropriate testing needs to be developed in parallel.

Red tape removal

Simpler approaches to allow the implementation of new systems and tests across the NHS need to be developed and sanctioned – especially those services recommended by national bodies, such as NICE, and those that bring financial or clinical benefit to the wider NHS patient pathway.

Genomic services

Ensure a workforce plan is developed to deal with increasing demands and that better ways of integration with other pathology disciplines, notably cell pathology and dermatopathology, are formulated so that patient pathways can be seamlessly provided.

Small discipline focus

Special attention needs to be made for smaller disciplines, such as forensic pathology, immunology, neuropathology, paediatric and perinatal pathology, and veterinary pathology, to ensure these services are better supported before they begin failing. Support for the existing workforce is vital so that retention is optimised, as is a need to have more flexible arrangements for the delivery of training. Additional financial support to services, such as analytical toxicology, is required to protect the expanding repertoire and equity of access to services.

Protecting vital national professional contributions

Better acknowledge, identify and protect consultant job plan time to contribute to essential national work, including work for royal colleges, professional bodies, regulators and other kindred organisations. Without this, pathology services are not sustainable both now and in the future.

Medium term (2–5 years)

In the medium term, there needs to be consistent ongoing investment in pathology as outlined above. Maturation of these objectives needs to have reached a point where they have been implemented equitably across the country.

Workforce

Additional training posts initiated earlier across both the medical and scientific workforce need to have been fully implemented, with trainees now on the verge of progression to consultant post in 1–2 years. Robust workforce planning models need to have been developed and put in place to incorporate staffing and workload data projections.

IT, standardisation and interoperability

By 5 years, standards should have been developed to ensure mandated procurement and implementation of pathology IT systems with standardised coding that enables pathology testing to be shared and communicated anywhere within the NHS.

Diagnostic stewardship

Systems should be in place to implement nationally recommended guidance on appropriate use of pathology tests at local level via diagnostic stewardship groups in every NHS Trust. This should be incorporated into contingency planning that ensures pathology tests are not overused.

Long term (5–10 years)

Maturity of policy and plans introduced 5–10 years previously should now allow pathology services to stabilise and work with higher levels of productivity.

Workforce

Robust workforce planning models should now be in place for all professions that match training and consultant posts with current and predicted workload trends.

IT and interoperability

Pathology services should by this time be fully interoperable with standardised systems of operation and seamless sharing of pathology images and test results across all pathology departments, NHS locations, clinical databases and patient-facing apps.

Digital pathology

Digital pathology should be fully rolled out across cellular pathology services and other pathology disciplines, such as haematology, cytology and other image-based services.

Diagnostic stewardship

Services should be functional across the NHS and allow workload to be optimised and reactive to instances of service or supply chain disruption as part of robust contingency plans.

AI

Expansion of AI-based image recognition and decision support algorithms should be more widespread across pathology services and be used to boost productivity, efficiency and patient safety across the wider NHS.

Patient-facing clinical services

These services should be now fully supported by a robust pathology workforce plan that protects clinical time to deliver them and supports both the shift to community and preventative delivery of healthcare.