

2024



Time to Test

CREATING THE CAPACITY THE NHS NEEDS FOR THE FUTURE OF CANCER TESTING

This report is based on outputs of a roundtable meeting that was initiated and funded by AstraZeneca. It represents the consensus developed at the meeting. AstraZeneca had full editorial control of the report.

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INTRODUCTION

The capacity challenge facing NHS cancer services is significant and can only be expected to increase.¹ Over a quarter of a million people are now being referred for urgent diagnostics every month in England² and demand is rising – 470,000 more people were tested last year than before the pandemic.³ Better diagnostics and treatments improve patient outcomes and reduce side effects, but they can also increase the existing pressures faced by health services.

Biomarker tests, from genetic tests to protein expression tests, are being increasingly used in routine cancer care to help identify the type of cancer a patient has and inform judgements on the suitability of a treatment and how a patient might respond. This move toward increased precision medicine is welcome but does not come without challenges – cancer testing services, like histopathology, are consequently facing increased demand with higher volumes of testing alongside the introduction of more complex tests. Without the necessary capacity, patients will miss out on the best possible care and NHS staff will be placed under intolerable pressure.

Building on the recently published report, [Capacity to deliver: unlocking the resources required to improve cancer outcomes in England](#), a roundtable was funded and convened by AstraZeneca, in partnership with the Institute of Biomedical Science (IBMS), to assess capacity in the workforce at a more granular level – looking at challenges and opportunities across pathology services.

This document outlines the six key challenges identified during the roundtable and makes recommendations on how to build and deliver streamlined and timely cancer testing services fit for the UK's future. This paper was initiated and funded by AstraZeneca. The views expressed are not necessarily those of the funder, but represent the consensus developed during the roundtable. This document was reviewed by AstraZeneca to ensure compliance with the standards set by the Prescription Medicines Code of Practice Authority.

¹ Cancer Research UK, [Cancer in the UK Overview 2023](#). Accessed 19 October

² NHS England, [Cancer Waiting Times -National time series Oct 2009 – Sept 2023 with revisions](#). Accessed December 2023

³ NHS England, [Faster diagnostic tests for cancer patients in latest NHS drive](#), April 2023. Accessed December 2023

BACKGROUND

Histopathology is at the centre of cancer care, from screening and diagnosis through to monitoring treatment. However, there are growing concerns that the current model and workforce numbers are unable to keep up with the increasing demand for pathology services across the NHS. Despite an increase in histopathology activity of 30% across the health service since 2018/19, the consultant workforce has grown by only 8% in that same period – not enough to meet clinical needs.⁴

The five year strategy, [Accelerating genomic medicine in the NHS](#), solidifies the Government's ambitions to drive the implementation of genomic and genetic testing across the health service, which in turn is pushing up demand for pathology services both in the number and complexity of tests performed. The strategy recognises that to support more extensive cancer genetic testing there is a need to address capacity issues across pathology services and the issues around long turnaround times.

The increasingly proactive drive towards prevention and early detection of cancer also has the potential to add additional pressures on an already stretched workforce, and ultimately limit access to vital pathology services for patients needing an accurate diagnosis. Getting this right can also contribute to the bigger picture objectives; reducing turnaround times in pathology services can lead to progress against the 28-day [Faster Diagnosis Standards and 62-day cancer targets](#), for example.

There are several practical solutions with the potential to build the cancer testing infrastructure the UK needs, for example capitalising on the benefits provided by digital pathology - including making better use of shared data and artificial intelligence (AI) – to provide additional capacity with appropriate oversight or identifying the necessary training requirements to reskill and upskill both the current and future workforce.

Useful thinking is already happening in this arena. For example, the recent report published by the IBMS and Microsoft – [‘Digital pathology and Integrated Care Systems’](#) – which highlights the collaborative opportunities presented by digital pathology which can help realise efficiencies in turnaround times, support continued professional development and progress equity of service delivery.

NHS England has outlined its objectives to transform pathology services and prioritise cancer testing, and is due to issue a ‘six-point histopathology improvement plan’ looking across the service, from workforce and estates through to automation and digital pathology. To drive progress against these objectives, AstraZeneca and the IBMS brought experts from across the diagnostic services workforce together to identify opportunities to: develop a more efficient system to deliver both high quality and better integrated care for patients; and support the workforce to enhance their careers and upskill to match the evolving landscape of pathology and cancer testing.

⁴ IBMS, [Long Term Biomedical Workforce Plan workforce plan](#), September 2023. Accessed December 2023

SIX RECOMMENDATIONS TO BUILD THE CANCER TESTING CAPACITY THE UK NEEDS

1. Grow the workforce

Biomedical and clinical scientists are unique, specialised, regulated and fundamental to clinical decision-making, ensuring patients receive timely, high quality, cutting-edge care through diagnostic and scientific interventions. However, the growing need for cancer testing can only be met by a growing workforce that is provided with the right support to identify and deliver efficiencies in practice.

The NHS Long Term Workforce Plan identifies how *“the lack of a sufficient workforce, in number and mix of skills, is already impacting patient experience, service capacity and productivity”*. It is therefore a regrettable missed opportunity that the plan did not consider the specific needs of the full regulated scientist workforce.

A sustainable workforce model needs to be implemented that enables all professional roles to operate at the top of their licence, including recruitment, retention, training and skill mix initiatives that will collectively reduce gaps in the workforce and empower scientists to embrace the benefits of automation and digital capability.

While clinical scientists have traditionally undertaken clinically oriented roles, this has been slower coming for biomedical scientists, despite a similar scope of practice being within the regulatory standards for the profession. Allowing biomedical scientists to operate at the highest levels of practice through training, experience and professional qualifications will in turn enable the workforce to begin building the cancer testing services the UK will need for the future.

It is equally important to support pathologists to play a key role in multidisciplinary teams, effectively lending their expertise to ensure a holistic approach to cancer testing considering the individual needs of the patient.

Recommendation: Improving cancer outcomes will involve a greater role for all those involved in cancer testing. As well as investing in and training a pipeline of talent, the NHS should support pathologists in playing a key role in multidisciplinary teams, and biomedical and clinical scientists in operating at the top of their licence, developing and using specialist and expert skills and knowledge.

2. Bring cancer testing together

The introduction of the [NHS Genomic Medicine Service \(GMS\)](#) is a welcome step toward a more personalised approach to diagnosis and treatment and can help us build rich genomic datasets that will be fundamental in our arsenal against cancer – allowing us to capitalise on innovative therapies more rapidly and maintain the UK’s position as a global leader in the field.

However, the increasing move towards Whole Genome Sequencing (WGS) and large next generation sequencing (NGS) panel testing as standard, centralised through [Genomic Laboratory Hubs \(GLHs\)](#), is at risk of distracting from rapid standard of care testing. The time taken to undertake WGS and

large panel NGS tests can have knock-on impacts on other tests, diverting resources from quicker tests that could guide urgent treatment decisions.

Genomics is not a separate practice to pathology, with the two fundamentally linked. As such, the division between genomic and non-genomic testing, fragmented across the service and separated by arbitrary approaches to technology, goes against the push toward more holistic methods of cancer care, particularly when many clinical markers – genetic, pathological and molecular – for common or established tests can be considered universally by clinicians and scientists in pathology laboratories closer to the patient.

A testing approach where expertise can be shared, across GLHs and local pathology services, would enable more consistent turnaround times for simple and rapid targeted testing, when identified as appropriate by a clinician, enabling treatment to be started sooner and GLHs to focus on the strategic shift to larger panel tests and genome sequencing.

A balance should be struck between using WGS and large NGS panel tests for diagnosis – for rare or more specialised testing – to collect rich datasets which are fundamental to our understanding of cancer, and a need to provide more integrated scientific and medical decision making that is patient-focused to ensure early diagnosis and treatment. This could operate in a parallel, networked approach to ensuring samples reach the National Genomic Research Library to continue the acceleration of research toward new biomarkers, diagnostics, and therapeutics.

This may mean a future evolution of GLHs as they currently operate, as technology becomes more mainstream, for example moving toward precision medicine hubs that are able to perform wider testing outside of just genomics, including, for example, proteomics and metabolomics, and are equipped to welcome more innovative approaches to cancer care as they come online. Genomics Pathology Accelerators could drive this, but more widespread communication to the system on their role and potential impact on testing is needed to allow them to fulfil their potential.

Recommendation: We should ensure testing is organised according to the needs of patients and multidisciplinary teams, delivering commonly used or established tests closer to patients and at the quality and scale required.

3. Enable providers to deliver

Where existing providers are unable to provide timely and high quality services, other providers – either GLHs or local laboratories – should be empowered to step in to ensure patients continue to receive the appropriate day-to-day care that adheres to standardised and robust quality assurance processes. Additionally, patients who need rapid and targeted testing should have access to this via the fastest means possible – whether through centralised hubs or via local services – without significant variation in testing delivery.

To make this an effective initiative in line with the goals of the Genomic Medicine Service, all providers need to be backed by robust standards and appropriate reimbursement mechanisms, delivering testing either through or outside of GLHs, in line with the National Genomic Test Directory. Where local services do take on standard of care testing to alleviate capacity elsewhere in the system, or to provide rapid and targeted testing for certain patients, consideration could be made to sending samples in parallel for WGS or large panel testing. This will ensure we continue to generate the breadth of knowledge many initiatives around the GMS are providing, and for the inclusion of data in the National Genomic Research Library.

To truly embed personalised cancer care, a diverse approach to diagnosis and treatment is needed that enables clinicians and scientists to match solutions to the individual. Allowing the system to be

flexible will deliver a clinically driven and more personalised approach to a patient's care, through rapid and targeted testing when appropriate.

Empowering local services to deliver this can free up capacity for central GLHs to focus on WGS and specialised testing – for example, for the diagnosis of paediatric rare diseases – improving turnaround times across the board.

For this to be effective, local services need to be supported to provide additional capacity, reducing bottlenecks and supporting transformation in line with the National Genomic Test Directory. This could include allowing certain trusts to opt out of some GLH services if they are able to provide the service in-house to a robust standard – supporting a system that can deliver at the best of times and at the worst. This is already happening in some cases across the country where backlogs would otherwise harm patient outcomes due to delayed treatment, but without appropriate governance or fair reimbursement for trusts, which risks unchecked variation in services.

Recommendation: Services should be patient and clinician focused; when centralised testing services are unable to provide a timely, high quality service, other providers should be supported to lend additional capacity, providing the right test at the right time. Where this happens, it will be important that tests are delivered according to the necessary criteria, as well as in line with appropriate quality measures and at a comparable cost.

4. Improve data

IT infrastructure, Laboratory Information Management Systems (LIMS) and digital imaging will all be key to making services more stable and efficient moving forwards. Many services, built around the model of historical genetic services, still rely on paper records and those that are harnessing digital software often find this can limit effective collaboration between centres. Many clinicians are frustrated by the absence of standardisation or consistency in data capture, with significant incompatibility and variation between systems that have different parameters to input patient information.

Building effective and interoperable data systems underpinning pathology services is vital to providing a high quality service for patients, enabling the rapid referral of cases between organisations or across pathology networks, improving laboratory workflow and connectivity and increasing the flexibility and efficiency of the workforce.

Embedding effective digital systems now can also support performance monitoring across centres, increasing transparency and instilling accountability across services – driving improvements to delivery and turnaround times.

Ensuring robust IT and digital infrastructure will also be the bedrock for the increasing use of AI, which has already shown potential to bring significant advances to cancer testing across the NHS.

Recommendation: Data on cancer testing is vital to enabling accountability, supporting timely and joined up patient care and informing research. Ensuring data is collected in a consistent manner and can be shared across systems is vital to improving quality and unlocking capacity. The publication of a genomics informatics implementation plan, as committed to in NHS England's genomic medicine strategy, is a vital first step towards delivering this and should be prioritised for publication as soon as possible.

5. Develop a cancer testing accountability framework

Embedding consistent standards for testing and turnaround times reduces the period of uncertainty for patients and assures high quality and safe pathology services which can meet the needs of a diagnostic clinical pathway, enabling treatment to begin as soon as clinically appropriate – ensuring the right test for the right patient at the right time.

There is currently too much variation in testing turnaround times across England, with some clinicians reporting GLHs unable to meet demand for testing – leading to waits of over 4-weeks for common, routine genetic tests, and some families waiting over a year for WGS results for rare diseases.⁵

In the face of delays, local services are increasingly picking up standard of care testing themselves – bypassing GLHs to ensure timely results for patients. This is often self-funded, with resource being diverted from other activities and impairing their ability to deliver other, fundamental services. Whilst the appropriate expertise is there, robust standards should be embedded across GLHs and local services to minimise variation in testing approaches and ensure patients receive consistent diagnostic testing.

Similarly, transparent, and regular reporting is needed to identify centres who are consistently missing turnaround targets to incentivise improvement and create a system with effective accountability. This should include consideration of appropriate metrics and management for services who are habitually underperforming.

NHS England has recently published genetic testing activity data for England, across the GLHs.⁶ This publication is a welcome step toward increasing accountability across testing services, and for identifying issues with testing access. Future publications should consider inclusion of data that enables comparisons in access to testing, for example between population groups or test types, and should be expanded to include all test lines in the directory and other routine tests provided – not just genetic testing.

Recommendation: Quality measures should be established which all NHS cancer testing providers adhere to, with comparable data published on performance. The framework should inform future commissioning decisions, as well as being used to identify good practice.

6. Invest in the fundamentals

Fulfilling ambitions for the personalised medicine of the future cannot be delivered without addressing the basic needs of services today. It will require joined up thinking to enable our current estates to meet their increasing demands. By consolidating workstreams to maximise our existing diagnostic capacity, we can scale up services and reduce turnaround times while ensuring workbench capacity and space for new technologies.

Setting up estates and infrastructure correctly now will enable diagnostic facilities to embrace innovation and evolve with the pace of medicine. This will enable the pathology workforce – from histopathologists to haematologists – to upskill or reskill where appropriate, creating a more resilient workforce that feels empowered to embrace change. Building high quality cancer testing services is one of the best investments that the NHS can make: earlier diagnosis will improve outcomes and reduce downstream costs, and precision medicine can prevent ineffective or unnecessary treatment. However, a long-term commitment is required to ensure capacity keeps up with the need for testing.

⁵ The Guardian, [Backlog in NHS genome services leaves families facing long wait for results](#), April 2023. Last accessed December 2023

⁶ NHS England, [Genomic Testing activity](#), December 2023. Last accessed December 2023

This will require investment in NHS estates, logistics and information systems so that services can consolidate and function in an efficient and effective manner.

Recommendation: Our ability to capitalise on advances in testing is undermined by outdated or inadequate physical infrastructure. Unsuitable use of buildings, overstretched courier services and inefficient information transfer all hinder the ability of cancer testing services to fulfil their potential. Investing properly in the fundamentals of infrastructure and logistics through increased capital funding would enable services to deliver high quality tests with rapid turnaround times and support the expansion of services fit for the future.

SIX STEPS TO BUILDING WORLD CLASS CANCER TESTING

This document identifies six practical solutions for unlocking capacity both now and in the future for pathology services, enabling the delivery of national priorities for diagnostic testing and precision medicine.

1. Grow the workforce

- Improving cancer outcomes will involve a greater role for all those involved in cancer testing. As well as investing in and training a pipeline of talent, the NHS should support pathologists in playing a key role in multidisciplinary teams, and biomedical and clinical scientists in operating at the top of their licence, developing and using specialist and expert skills and knowledge.

2. Bring cancer testing together

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APPENDIX – ROUNDTABLE ATTENDEES

With thanks to the below attendees who contributed their expertise to the roundtable discussion. This summary provides an accurate representation of the discussion on the day but does not necessarily represent the organisational views of those in attendance.

- David Wells, *Chief Executive, **Institute of Biomedical Science (IBMS)***
- Sarah May, *Deputy Chief Executive, **IBMS***
- Matt Evans, *Consultant in Cellular Pathology, **University Hospital Southampton NHS Foundation Trust** and *Pathology Lead, **Central and South Genomic Laboratory Hub (GLH)****
- Mr Ashley Gilchrist, *Advanced Practitioner in Breast Pathology at the **Royal Marsden NHS Foundation Trust**, and *Biomedical Scientist representative on the **Association of Breast Pathology’s Council****
- Keeley Thwaites, *Immunohistochemistry and Molecular Diagnostics Scientific Lead, **Barking, Havering and Redbridge University Hospitals NHS Trust***
- Dr Mike Osborn, *Immediate Past President of the **Royal College of Pathologists***
- Brendan O’Sullivan, *Molecular Pathology Operations Manager at **University Hospitals Birmingham NHS Foundation Trust***
- Matt Wilven, *Content Manager, **IBMS***
- Lee Welch, *Diagnostics Lead, **AstraZeneca***
- Mike Birtwistle, *Senior Counsel, **Incisive Health** (Chair)*



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