

Written evidence submitted by the Royal College of Pathologists (ECS0006)

The Royal College of Pathologists (RCPATH) is a professional membership organisation with more than 12,000 fellows, affiliates, and trainees. We set and maintain professional standards and promote excellence in the teaching and practice of pathology, for the benefit of patients. Our members include medically qualified pathologists and clinical scientists in 17 diagnostic specialties.

The College welcomes the opportunity to contribute to this evaluation in relation to pathology in the areas below:

Workforce

Government commitment: The Cancer Workforce Plan committed to the expansion of capacity and skills by 2021

Pathology underpins every aspect of patient care, and pathologists are crucial to cancer diagnosis, treatment, and monitoring of patients. Pathologists provide diagnostic information and advice to all specialties in primary, secondary, and tertiary care.

There has been a year-on-year increase in demand for pathology services, both in the number and complexity of tests performed. Staffing levels have not risen in line with demand and pathology services are unable to recruit to vacant posts. It can take up to 15 years to train a pathologist. It is therefore the College view that this commitment has not been met.

Key messages

- 95% of clinical pathways rely on patients having access to efficient, timely and cost-effective pathology services; a service that requires significant attention and investment if it is to meet both the immediate and future workforce demands.
- The workforce is an ageing one; around a third of pathologists are 55 or over. When our most senior consultants retire in the next 5-10 years, there will not be enough trainees to replace them in numbers, let alone in knowledge and expertise.
- The College has serious concerns over preparations to deal with the backlog of non-COVID-19 related illness and the related surge of demand for pathology services, particularly for cancer diagnosis and treatment for both tissue and blood cancers.

The COVID-19 pandemic has highlighted the importance of laboratory tests and laboratory professionals within healthcare. There have been workforce shortages for some time, but now more than ever, it is vital that services are sufficiently funded and supported. This is necessary to optimise healthcare recovery both for COVID-19 related illness and to tackle the diagnostic backlog, particularly in cancer services. Ensuring that there are sufficient trained staff, equipment, and IT support to underpin laboratory services is vital. The College suggests the following solutions:

Short-term:

- Increase numbers of biomedical scientists supporting medically qualified pathologists in integrated teams.

- Increase number of clinical scientists in pathology and provide improved/widened workplace/academic training programmes.
- Encourage return to practice.

Medium-term:

- Increase training posts in all pathology specialties.
- Invest in schemes to attract trainees to pathology at all stages of education.
- Provide better IT including modern, functional laboratory information systems, voice recognition support and remote working software.
- Ensure capital investment to implement digital pathology more widely, enabling staff to work more efficiently, flexibly, and remotely.

Long-term:

- Prepare for greater demand for pathology services to service increases in chronic disease, (diabetes, heart disease, chronic respiratory diseases).
- Ensure staffing levels are sufficient to meet service expectations. This is not possible in the current model where staffing is aimed to cover minimum/average workload.

The College, as part of a coalition of c 90 health and care organisations, supports an amendment calling for stronger provisions on workforce planning in the Health and Care Bill. This broad-spectrum coalition is clear that the data gap on how many staff will be needed in future must be resolved to put the NHS and care workforce back on a sustainable footing. The amendment would mandate the regular publication of independent assessments of current and future health and care workforce numbers.

95%¹ of patients will have a pathologist involved in their care at some point in their healthcare journey. The specialties play a vital part in cancer diagnosis, chronic disease management and have been central to efforts during the COVID-19 pandemic. As the evidence points to it being between 2%² and 4%³ of the healthcare bill, the value of pathology services far outweighs the cost.

Without the right test, at the right time, with the right answer, safe and effective patient care cannot be delivered. Having the right number of diagnostic staff in the right places, working in a supportive culture, is key to the delivery of the College's vision of an agile and resilient pathology service with patients at its heart.

Recruitment and retention are a problem in rural areas, which results in the patient journey being slower, with the challenges of getting to hospitals. Pathology is at the heart of most patient experiences, and when pathology is well resourced, there are enormous benefits to the quality and timeliness of patient pathways. The advantages of pathology diagnostics are not being harnessed, with the role of pathologists often hidden.

The College has produced workforce data⁴, which identify the following geographical trends:

- North West England has highest proportion of vacant medical posts.
- Wales has lowest number of histopathology consultants per million population.
- Aside from London, the England regions have lower rates numbers of clinical biochemistry consultants than the other three countries.
- The Midlands has greatest proportion of medical haematology consultant vacancies.

- North West England has highest proportion of medical microbiology consultant vacancies.

Regarding the issues specific to roles:

- Consultants are needed in all paediatric laboratory medicine sub-specialties.
- Increasing dependence on molecular expression and genomic information to define disease and enable treatment is “new” work. More staff are needed to take on this service load that will, as it has in haemato-oncology, benefit patient outcomes.
- Staffing difficulties means the need for locum scientific and medical staff and remote reporting by private companies. Laboratory staff are often subject to poor pay structures, coupled with poor development and progression opportunities.

Histopathology

Histopathology is seen as the ‘gold standard’ test for the diagnosis of many cancers and has been seriously challenged for several years due to the increasing volume of samples (e.g., related to bowel and prostate cancer – and including national screening programmes as well as investigations in symptomatic patients) and the increasing complexity of testing.

For example, a histological diagnosis of colorectal cancer nowadays will be followed by extra testing on the biopsy to exclude the possibility of a familial cancer syndrome (Lynch syndrome). If the patient has widespread cancer, further testing on the biopsy to help predict the likely response of the cancer to additional treatments is commonly undertaken.

In 2020, Cancer Research UK⁵ highlighted that the number of histopathologists is forecast to reduce from the existing shortfall by an additional 2% by 2029, unless there is targeted action and investment. Although recruitment into histopathology has increased, there remains a 25% shortfall in staff able to report results, with some regions having even higher shortages.

Cytopathology is the study of individual cells and is undertaken largely by general histopathologists. It plays a major role in the diagnosis of many conditions, both malignant and benign. It is integral to the diagnosis of lung cancers and in cervical screening as two examples. It uses many of the same techniques as are used in histopathology, such as molecular analysis and increasing use of digital techniques. Cytopathology faces the same workforce and general issues as histopathology.

Clinical Biochemistry

Clinical biochemists play a key role in diagnosing patients with a wide variety of illnesses – from bowel cancer to high cholesterol and rare genetic diseases. As a result of potential retirements and increased demand, clinical biochemistry is facing an uncertain future. These pressures are compounded by workforce instability, potential changes to job planning arrangements, medical training and clinical scientist training. It is anticipated that 47% of consultant posts could be vacant within the next 10 years. If not filled, this would leave the service unable to cope with the demands placed upon it, including running clinics for diabetes monitoring. In addition, the complexity of caseloads is growing, with metabolic tests guiding new therapies.

Haematology

Haematologists are doctors who are experts in blood. These include the blood cells circulating in the blood and those being made in the cell factories of the bone marrow. Haematologists study blood disorders, including blood cancers and diagnose and treat these cancers. They are an essential element of clinical cancer care. As reported in the [British Society For Haematology workforce report](#), vacant posts are an issue, exacerbated by the need for service expansion to accommodate new therapies and increasing complexity of the clinical workload in an ageing population with longer survival. The BSH workforce/member research has also highlighted the increasing prevalence of stress and concern about the wellbeing of those in the haematology profession (>75% respondents).

There is a high proportion of consultants approaching retirement, 48% of haematologists will be retiring in the next 10 years, this will be compounded by difficulties in recruitment to both substantive and trainee posts and represents a higher proportion of the workforce than in many other specialties <https://www.rcplondon.ac.uk/projects/outputs/focus-physicians-2018-19-census-uk-consultants-and-higher-specialty-trainees>

There are areas of haematology training and career development that need specific attention including development of improved pathways for career progression for healthcare scientists, acknowledgement of the role of consultant scientists and clarity on career structure in other areas including paediatric haematology.

Diagnosics

Government commitments: A faster diagnosis standard from 2020 to ensure most patients receive a definitive diagnosis or ruling out of cancer within 28 days of referral from GP or from screening. By 2028 the proportion of cancers diagnosed at stages 1 and 2 will rise from around 50% now to 75% of cancer patients

The pandemic has had a devastating impact on recent efforts to improve cancer recovery and survival in the UK. Until the diagnostics are complete, treatment for cancer, as with other debilitating conditions, cannot start. There is a compelling need for diagnostics to be “front loaded” so that the prioritisation of patients becomes markedly more efficient. The government’s commitment to 40 community diagnostic centres is a major step in the right direction.

Community Diagnostic Centres

- We welcome the move to introduce easier access to diagnostic services centred around patients. Quicker, easier access through a ‘one stop shop’ will lead to earlier diagnoses which leads to better outcomes for patients and can save lives.
- The significant drop in referrals from primary care has meant that patients are presenting late for diagnosis. The establishment of Community Diagnostic Centres should help with this by introducing easier access to diagnostic services centred around patients. Quicker, easier access through a ‘one stop shop’ will lead to earlier diagnoses which leads to better outcomes for patients and can save lives.
- These new diagnostic centres need to be introduced with sufficient resources, in terms of staffing, IT provision and connectivity with other systems (such as GP practices).

The COVID-19 crisis has highlighted pre-existing problems facing rural areas. Our members tell us that this means patients wait longer for a diagnosis in these areas. It can be hard to recruit and

retain doctors and nurses who are willing to work in smaller hospitals, which means health Trusts/boards rely more heavily on agency staff to fill gaps in rotas. This has a knock-on effect on patient care, with patients travelling long distances.

Cytology in diagnosis

Cytopathology is the study of cells in body fluids, smears and aspirated samples, and is key for example in the study of cervical smears for the detection of changes in the cervix that could lead to cancer.

Challenges in cytopathology include:

- huge variations in general diagnostic cytology workload due to variation in workflow especially given reduction and now rebound in work with the pandemic. Many centres experienced a relative increase in malignant diagnostic rates as cancer investigations were prioritised.
- departments struggling as cervical screening catches up with a very marked rebound workload effect. Some centres are still unable to deliver the 14-day turnaround time from sample taking to report to women required of the cervical screening in England.
- Everyday reporting and work, training and education has changed dramatically to enforce social distancing and other COVID-19 avoidance strategies. Many will remain in the future as some have been advantageous but require more time and effort to deliver.
- The use of IT has hugely accelerated and been used for meetings, education, and reporting consultations. The introduction of the new Cervical Screening IT system is long overdue but is planned for delivery shortly. The hope is that it will deliver what is required of a modern cervical screening programme.

Innovation and Technology

Government commitments: Safer and more precise treatments including advanced radiotherapy techniques and immunotherapies will continue to support improvements in survival rates

We acknowledge the significant investment in LIMS/digital pathology promised for 2021-2022. This corresponds to the NHS priorities for 2022/3 announced on 24 December 2021 (Achieving “digitisation in every service”⁶). In relation to this, the commitment has been met however long-term investment in training staff and establishing well-equipped laboratories to support Genomic medicine is needed. This area offers an incredible opportunity for faster, accurate diagnosis and tailored treatment, particularly for people with cancer.

Digital pathology

Digital pathology includes the acquisition, management, sharing and interpretation of pathology information — including slides and data — in a digital environment. Digital slides are created when glass slides are captured with a scanning device, to provide a high-resolution image that can be viewed on a computer screen or mobile device.

- One area the College is keen to develop as a profession is to harness technology to achieve the best possible outcomes for the workforce and patients. Digital pathology has the potential to improve patient care and support the pathology workforce by making the diagnosis and monitoring of disease much more efficient. However, to transform pathology services and support patient care and safety, we need investment in IT infrastructure, staffing and training.
- Digital pathology also facilitates remote working in several ways which are useful during the pandemic and going forward will help with staffing issues - home reporting, avoiding the need to be physically in the same space as a colleague giving a second opinion, and facilitating trainee pathologists in learning.
- Any investment should also build on the initial investment of the NHS to develop centres of excellence in digital pathology nationally. These centres can help with any further expansion of the technology across the NHS, by sharing knowledge and standards. It is the view of the College that digital pathology should be centrally funded and rolled out nationally in a similar way to digital radiology.
- Digital pathology, and developments in technology enhanced learning provide unique opportunities to support future training models (attracting high calibre trainees), multidisciplinary learning, and workforce challenges. For example, the Pathology Portal⁷. The adoption of these beneficial modern technologies will require initial funding and ongoing financial support to maintain up-to-date systems, and to train the pathologists, IT staff, and biomedical scientists to use them effectively.

Artificial Intelligence

There is great potential for the development of AI to support the diagnostic process in pathology, especially image analysis in histopathology. Investment in digital pathology systems with joined up IT systems and information sharing across organisations is vital to begin to understand the potential for AI-assisted diagnostics, and continued investment in digital pathology. There will need to be educational resources to educate health professionals in data governance, ethics, appraisal and interpretation of AI and similar technologies.

While the advent of AI in pathology is very exciting, and the NHS could be a world leader in the development and use of AI in pathology thanks to investments in this area to date. a great deal of work is required to get to the point where AI is fully developed and used safely in the NHS. As a result, it is very unlikely that AI will address the severe workforce gaps we see in the short term, but rather contribute to future developments in medical safety and efficiency in the medium term.

Genomic medicine

- Genomic medicine provides an incredible opportunity for faster, accurate diagnosis and tailored treatment for people with cancer, and with inherited diseases.
- It is essential that there is equity of access to tests and the associated treatment(s).
- Evidence-based medicine is the cornerstone of these developments, and it is vital to integrate research and data collection into monitoring clinical outcomes for patients.
- Developments in genomics will require significant investment – i.e., more staff equipped with knowledge, and laboratories with necessary equipment.

- Pathologists are at the heart of these developments and hence must be involved throughout the programme, because of their vast experience in tissue handling, processing and reporting.
- There is no planned resource provision for the significantly increased workload that the Genomic Medicine Service will create for pathology, which will grow over time. Without this being addressed there will be issues in providing the quality and level of service desired.

Genomic analysis is increasingly being undertaken on cancer samples in order to refine diagnoses and to help determine the best treatment strategies. This may necessitate taking of additional biopsies and even when existing biopsies are used as samples for these tests, extra work is required from histopathologists for pre-and post- genomic test processing e.g., determining whether sufficient cancer tissue is present within a sample to enable genomic testing to occur; and integrating the test result into the existing histopathology report. This all results in significant additional workload for histopathology laboratories.

Targeted cancer therapy using CAR-T cells

Reprogramming a person's own immune system to target cancerous cells provides a truly individual approach to cancer treatment, which involves collaboration between haematology and pathology services.

CAR-T therapy is a novel and highly complex immune therapy that redirects the body's own immune system to fight cancer. CAR-T cells are often described as 'the living drug' because they actively search and target malignant cells. It uses a type of immune cell called a T-cell, which is extracted from patients' blood before being genetically altered to allow it to target surface proteins found on cancer cells.

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References

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- ⁷ <https://www.rcpath.org/discover-pathology/news/pathology-portal.html>