The Bulletin

of the Royal College of Pathologists

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

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From the Editor – January 2025

Professor Angharad Davies introduces the January Bulletin.

Published: 15 January 2025 **Author:** Professor Angharad Davies **Read time:** 4 Mins

A very Happy New Year to all our readers.

It's always natural to look to the future in January – and there is nothing more important than investing in the health of the next generation. One of the most concerning findings of Lord Darzi's rapid review of the NHS, published last year, was that children's health in the UK has deteriorated over the past 15 years. So, the Bulletin starts 2025 with a focus on challenges and advances in paediatric practice within our specialties, an area that doesn't always receive the attention it deserves. We have 7 theme feature articles from a wide range of specialties and I'm delighted that we carry a guest editorial from the office of the Children's Commissioner for England, for whom child health is a priority area. Working to optimise the services we offer to children makes a great new year's resolution that should be taken very seriously.

As I write this, ransomware and prevention of cyberattacks are headline news again. Last year's Synnovis cyber-attack impacted laboratory information management systems and left pathologists unable to provide key services. The College's Pathology Informatics Committee, chaired by Dr Karen Mitchell, has developed learning points from this incident, in consultation with members – a useful resource, which is published in this issue.

The College's Medical Microbiology and Medical Virology Specialty Advisory Committee is committed to helping members working in infection to manage their ever-increasing workloads. The SAC, in collaboration with the British Infection Association, recently published a document to help members optimise their clinical consultation activity. SAC Chair Dr Natasha Ratnaraja explains more.

In September 2024, a programme of death certification reforms came into force; the role of the medical examiner is a major part of this, and the College hosted a reception to mark the launch of the statutory medical examiner system in England and Wales. Representatives from

government, NHS England and faith communities attended and Dr Suzy Lishman reports for us.

The theme of College's International Pathology Day event was antimicrobial resistance. We were joined by the inspirational Professor Dame Sally Davies, the UK's special envoy to the UN on antimicrobial resistance. Kelley Price of the International team has more on this event. Also on the international front, we hear from Dr Charles van Heyningen about progress in a collaboration to strengthen cervical screening services in Moldova.

Another highlight of the College calendar is the very successful undergraduate Pathology Summer School, which last August welcomed 55 medical students from across the UK. The College was also well represented at the Science Museum's high profile 'Journey of Life' Lates event, at which a number of our members showcased the role of pathology. You can read more about both events in the 'Sharing our subject' section, along with Dr Caroline Cartlidge and Debamita Bhattacharjee's report on the public's perception of pathology, following the Behind the Microscope exhibition at the Thackray Museum of Medicine in Leeds.

You may remember that the April 2024 Bulletin had the theme of sustainability in laboratory practice. It was an opportunity to share good practice and initiatives from services across the country and also to highlight what the College itself is doing in response to the climate challenge. One contributor to that issue was Dr Shireen Kassam, who has now been appointed College Sustainability Lead – in this issue, she writes about what this new role will involve.

We also have reports on the 2024 RCPath Cameron Lecture delivered by Dr Farrukh Shah MBE on developments in managing haemoglobinopathies; the work of Clinical Virology Network's William Tong Prize winner, Dr Julianne Brown, on metagenomics to improve the diagnosis of encephalitis; and a look forward to the 2025 John Dacie lecture, joint-hosted by the College and the British Society for Haematology, which will be delivered by Professor Andreas Greinacher. Meanwhile, histopathologists may be interested in a review by Dr Heather Keir of the third edition of Diagnostic Pathology: Molecular Oncology, by Mohammad A Vasef and Aaron Auerbach.

Finally, a very stormy New Year's Day here in south Wales was followed by a period of brilliant sunshine and a bracing walk along local beaches and clifftops, while polishing off some Christmas chocolate. We are very fortunate to have such outstanding scenery on our doorstep. Wales Regional Council Chair Dr Anu Gunavardhan reports on the Wales Regional Council's Symposium and coastal walk, which was similarly blessed with beautiful weather and raised awareness of rare diseases with local politicians.

I hope you will all find something of interest and use in 2025's first Bulletin issue. If there is content you would like to see in future issues, please get in touch – it would be great to hear from you.

Meet the author

PROFESSOR ANGHARAD DAVIES
CLINICAL DIRECTOR OF PUBLISHING AND ENGAGEMENT

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

From the President – January 2025

The President introduces the first Bulletin of 2025.

Published: 15 January 2025 **Author:** Dr Bernie Croal **Read time:** 5 Mins

Welcome to 2025!

Firstly, a warm welcome to you all from the College to the year 2025. This edition of the Bulletin, the first for this year, focuses on paediatric pathology. While this is a relatively small specialty, its importance to and effect on patients, families and healthcare cannot be understated. If we bring prenatal, perinatal and paediatric pathology together, as we do for our specialty advisory committee, then we see a very rich, wide and complex set of overlapping sub-specialties that provides a huge variety of important services across healthcare. Finite capacity and resources, of course, mean that if one part comes under pressure, then this is felt across all related services. The challenges being faced will soon be felt across all our disciplines.

Within this edition, we focus on many things that are invaluable about paediatric pathology, such as its important role in paediatric infection practice, oral microbiology, metabolic disorders (both inherited and acquired), immunisation, childhood cancer and, of course, the vital role of paediatric and perinatal autopsy. We cannot highlight these topics without reflecting on the workforce crisis that exists.

Capacity and workforce concerns

There are many concerns across the NHS and, indeed, across wider healthcare about the increasing lack of capacity and workforce to deal with both current and future demands on services – pathology is at the forefront of such imbalance. Inevitably, it is smaller disciplines that are more at risk, such as immunology, neuropathology, forensic pathology, and paediatric and perinatal pathology.

The latter has been a persistent focus for the College in recent years. In many ways, we have witnessed a slow-motion car crash, as the number of pathologists reduce, the vacancies rise and local services collapse. Bristol, Birmingham, Leicester and Northern Ireland are all now without any paediatric and perinatal pathologists. We anticipate more services will collapse. Despite attempts to provide mutual aid from other centres, a consultant vacancy rate approaching 40% means that all services are now at risk.

Significant efforts are being made by the Department for Health, NHS England, the College and other stakeholders to explore any contingencies that can be put in place for the short term, while looking for future fixes for the years ahead. It's very late in the day but we need to continue to try, and we will.

What's the plan for pathology?

In recent times, we have been juggling the long-term workforce plan, the 10-year plan, the elective care plan and the AI action plan – all of which rely heavily on pathology services having the necessary services and workforce to deliver. However, the necessary investment in infrastructure, IT, automation, digital, AI and workforce has slipped way behind where we need to be.

The economy, politics and public opinion – sometimes driven by social media and misinformation – mean that the government has become hesitant and has not taken the option of increased general taxation and borrowing to create the much-needed funds to recover healthcare. This means that we are unlikely now to see the level of funding that is desperately needed to allow the expansion in either specialty training or substantive consultant posts.

The plan for pathology, therefore, is to make do with what we have, become more efficient, improve retention and make contingency plans for when we can't do everything that is asked – those days are upon us now.

This College is creating its own plan for pathology – the Pathology Plan – that deals with the challenges we face, outlining what we can do to mitigate these issues and also highlighting and showcasing the importance of pathology. We need to demonstrate the vital impact that pathology has on patient pathways when the investment is made in the right places. But, if we cannot deliver the best diagnostics and care possible, we need to ensure we can deliver the best care that we can, given the resource envelope we have to work in.

The Bulletin will continue to play an important role in all of this, acting as one of our vehicles to showcase and disseminate information and examples of the great things that pathology is doing, can do and will do in the future.

Supporting the College

The role of pathologists, scientists and other stakeholders is more important than ever. We need to come together to innovate, create positive outcomes and share and disseminate what is good and what works. This collective responsibility is vital for our professional wellbeing and vital for patient care. Support the College, support your profession and support healthcare.

Sustainability continues to be important for the College, for pathology services, for healthcare and for the planet. It is a pleasure to welcome Dr Shireen Kassam as our new Sustainability Lead for Pathology Practice – you can read more about her in this edition. It is important that we, as professionals, look at practices across the College, laboratories services and wider healthcare settings to ensure that environmental and sustainability issues are at the forefront of everything we do.

Message for 2025

The healthcare outlook for the coming year – given the economy, the waiting lists, the backlogs and the absence of any signs that things will get better – remains very poor. This does not mean that pathology is failing. Every day we screen, diagnose, monitor and treat millions of patients, making a huge difference to their lives – we have a huge footprint on healthcare. We should be very proud of that.

So, while investment is slow, workforce shortages continue and new technology seems unaffordable, remember that what is difficult today will be easier tomorrow, what is expensive today will be cheaper tomorrow and what seems impossible today will happen tomorrow. Meanwhile, let's work together, let's collectively stand up and showcase what we can do and be ready with the argument, the business case and the enthusiasm to take the opportunities when they come… and they will come.

Meet the author

DR BERNIE CROAL

PRESIDENT, ROYAL COLLEGE OF PATHOLOGISTS

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Children's Commissioner guest editorial: Creating the healthiest generation of children yet

Dame Rachel de Souza, Children's Commissioner for England, introduces January's theme.

Published: 20 January 2025 **Author:** Dame Rachel de Souza **Read time:** 5 Mins

The government has laid out a clear ambition to make this generation of children the healthiest yet – an ambition, as Children's Commissioner, I share. I want every child to have what they need for healthy childhoods that set them up for long, happy and healthy adulthoods.

There's been remarkable progress on children's health over the years – medical breakthroughs, coupled with policy and cultural shifts, have made growing up in this country safer. But we've also seen some of that good work stall more recently – or even reverse.

Lord Darzi's rapid review of the state of the NHS highlighted that children are getting sicker on many counts. Obesity among children aged 11–15 has steadily increased since 2014,[1] and vaccine-preventable diseases are claiming more young lives as childhood immunisation rates have declined since 2013.[2] Rates of children and young people with probable mental health conditions have increased substantially in recent years, from about 1 in 8 children and young people in 2017 to 1 in 5 in 2023.[3,4]

These are not just public health concerns – they are a failure to uphold children's rights. Many illnesses are preventable with the right early support from health services, social care and schools.

An urgent priority

We are at a crossroads. As the government develops its 10-year NHS plan, there is a huge opportunity to transform children's health and wellbeing. While the factors that influence children's health go beyond healthcare, this NHS strategy will be pivotal.

Since becoming Children's Commissioner, I have heard from a million children and young people – it is their voices and experiences, as well as those of almost 367,000 who responded to my Big Ambition survey last year,[5] which informed my response to this strategy's consultation.

Children's health and wellbeing must be prioritised and sufficiently funded. Children represent 24% of the population, but account for only 11% of NHS expenditure.[2] On a national level, I would like to see a Joint Outcomes Framework to align public services to improve children's health, supported by pooled funding and better local accountability. Improved data sharing is essential; I have long called for a unique identifier for children that prevents them from falling through the gaps in different services, so I am pleased that, through the Children's Wellbeing and Schools Bill, this will become law. It is urgent and long overdue.

Community-based support is also vital. The introduction of Young Futures Hubs, modelled on Early Support Hubs, is a positive step towards moving care for children with chronic or serious health conditions away from hospitals and into community or home settings, where possible. Those that cannot receive care outside of a hospital or hospice, or are being deprived of their liberty, also deserve loving and caring integrated support from health and social care services.

The government's 10-year plan is a chance to reshape the landscape of children's health and wellbeing in a way that reflects their own experiences. Too often their voices and views are overlooked – we need systems designed with them, not just for them.

References available on our website.

Meet the author

DAME RACHEL DE SOUZA

CHILDREN'S COMMISSIONER FOR ENGLAND

From the Editor

In recognition of Lord Darzi's rapid review findings of a decline in children's health, highlighted above by Dame Rachel, in this issue of the Bulletin we explore paediatric practice from the perspective of pathology specialties.

Most of us provide services to children in our laboratories, so issues in paediatric pathology and laboratory medicine deserve our particular attention. Tim Lang, Consultant Clinical Scientist in chemical pathology at the Royal Victoria Infirmary Newcastle, explains the requirements of paediatric patients in laboratory medicine, from diagnosing and identifying risk factors to developing adequate testing and sampling technologies.

Vaccination is one of the most effective public health interventions available, yet as Dame Rachel has pointed out above, coverage across many of the routine childhood programmes across the UK has been steadily declining, a highly alarming trend. Sharif Ismail and Julie Yates from the UK Health Security Agency discuss some of the long-term challenges for vaccine-preventable disease prevention and control, and review key recent and upcoming changes to the routine schedule for children and young people.

Staying with infection, James Hatcher, consultant in medical microbiology and infectious disease at Great Ormond Street Hospital for Children, highlights some key challenges in paediatric infection practice, including clinical, diagnostic and workforce issues, and considers examples of how some of these are being met. Also from Great Ormond Street Hospital, Principal Clinical Scientist in immunology Elizabeth Ralph reports on advances in the diagnosis and management of paediatric immune deficiencies.

Meanwhile, the most prevalent chronic condition of all among children is dental caries. What can be done to tackle this problem? Oral microbiology trainee Nikul Patel and dentist colleague Rosie May-Bennet address this issue.

Paediatric and perinatal pathology itself is one of the United Kingdom's smallest specialties, with approximately 55 consultants. Together, they are responsible for reporting a very broad range of specimens from neonates to teenagers, fetal, perinatal and paediatric post mortems (including both coronial and forensic), and placental pathology. Rachel Rummery, Kerry Turner and Jens Stahlschmidt, consultant paediatric and perinatal pathologists at Leeds Teaching Hospitals NHS Trust, with Liz Hook, Honorary Consultant Paediatric Histopathologist, Cambridge University Hospitals NHS Foundation Trust, write about how paediatric and perinatal pathologists are embracing new technologies and working together to improve care for children and their families.

Finally, Tom Jacques, Professor of Paediatric Neuropathology at the UCL Great Ormond Street Institute of Child Health and Matt Clarke, NIHR Clinical Lecturer in Neuropathology at the Institute of Cancer Research, explain the dramatic changes in the field of paediatric brain tumours over recent years.

Meet the author

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Current advances and issues in the diagnosis and management of primary immune deficiencies in children

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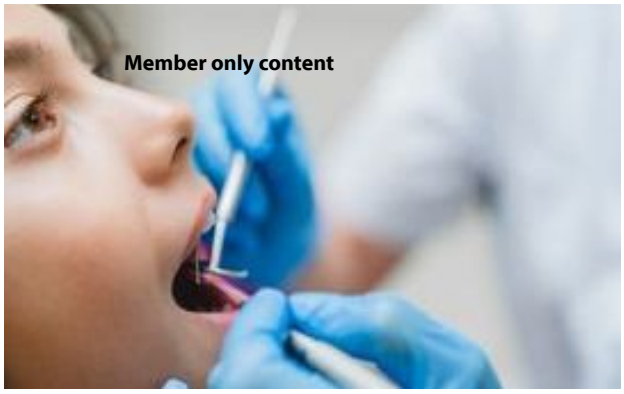

Beyond the tooth: The far-reaching impacts of dental caries

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New developments in childhood vaccination and immunisation in England

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Current advances and issues in the diagnosis and management of primary immune deficiencies in children

Elizabeth Ralph of Great Ormond Street Hospital for Children reports on paediatric immune deficiencies.

Published: 15 January 2025 **Author:** Elizabeth Ralph **Read time:** 6 Mins

Inborn errors of immunity are a broad range of inherited immune defects that affect all aspects of the immune system. They predispose to infections, autoimmunity and malignancy, and the majority manifest in childhood.[1] These conditions present both diagnostic and treatment challenges.

One mask, many faces – overcoming the diagnostic challenges

The diverse and often non-specific presentations of some inborn errors of immunity (IEIs), also known as primary immune deficiencies (PIDs), can resemble other non-immunological conditions. As a result, missed or delayed diagnoses can occur, particularly in primary care settings where awareness of IEIs may be limited. The use of artificial intelligence (AI) and machine learning as screening tools for IEIs may help overcome this issue.[2]

A number of research groups, including the INTREPID team at UCL, the PIDCAP project at the Vall d'Hebron Barcelona Hospital and Liberty University with the Jeffrey Modell Foundation's SPIRIT Analyzer are developing machine-learning approaches. These models can be trained to recognise IEIs on the basis of clinical features of known cases extracted from electronic health records. The models can then use data from the health records of undiagnosed IEI patients to identify potential cases and thus enable earlier diagnosis.

However, there are hurdles to the implementation of AI into a routine diagnostic setting. These hurdles include the non-standardised nature of much electronic health record data, as well as data security and privacy concerns. Nevertheless, this is a rapidly growing field that may become part of the diagnostic landscape in the not-too-distant future.

Complications in genetic diagnosis

The diagnosis of IEIs is further complicated by the fact that many of these conditions are also genetically heterogeneous – in the case of severe combined immune deficiency (SCID), there are multiple genes that may underlie such a diagnosis.[3] Comprehensive genetic testing is, therefore, important for accurate diagnosis and appropriate treatment. Whole-exome sequencing (WES) and whole-genome sequencing (WGS) can detect mutations across a broad range of immune-related genes, rather than attempting to sequence multiple individual candidate genes.

The NHS Genomic Medicine Service, established in 2018, has provided testing for all types of IEI via the R15 gene panel, which now includes 574 genes (v7.21).[4] However, WGS and WES can also pose challenges: variants of uncertain significance (VUS) may be identified, genes may have poor coverage, pseudogenes may be present and sequencing may not include areas such as promoter regions. VUS with unclear, or as yet unreported, disease associations require cautious interpretation.[5] The ability and capacity to investigate these VUS at the protein/cellular level is important and remains a challenge within NHS diagnostic laboratories outside a few specialist centres, often requiring a partnership with university research laboratories.

Early detection

It has long been known that the best patient outcomes occur when IEIs are detected early, even before the condition has begun to manifest and before disease burden, particularly infectious complications, has accumulated.[6] After a delay due to the COVID-19 pandemic, the NHS pilot of newborn screening of SCID launched in September 2021 across 6 screening centres in England with a plan for a 2-year trial and a further 1 year to analyse the data.

A 7th centre joined in late 2023 and the trial was extended by a further 6 months. Almost 1 million babies have been screened for SCID since the start of the evaluation. The data collected during the pilot and the future implementation of the programme are currently under evaluation.[7] In a more recent development, Genomics England has launched a pilot study called the Generation Study.[8] The study will recruit participants across 19 hospitals in England to screen for over 200 rare but treatable genetic conditions. The study, one of the first of its kind globally, aims to offer early diagnoses, enabling timely intervention and, therefore, improved outcomes for children with rare conditions.

This approach aims to prevent the delayed diagnosis many families face and mitigate the impact of progressive conditions before symptoms develop. Conditions included range from metabolic disorders to IEIs, all selected because they are treatable in the early stages. This will be an interesting project to watch.

One journey, many routes – navigating the treatment options

Once diagnosed, the diversity of IEIs requires personalised treatment protocols, as few standardised regimens exist for these rare and complex conditions. Supportive therapies, such as immunoglobulin replacement and prophylactic antimicrobials, are the mainstays of management for IEI, but for many conditions, curative options are necessary. Haematopoietic stem cell transplant (HSCT) has been a cornerstone in this, but it is resource-intensive, dependent on suitable donor availability and carries risks, including graft-versus-host disease. Despite improvements in HSCT protocols, such as reduced-intensity conditioning and alternative donor transplantation, e.g. cord blood cells, obstacles remain, particularly for patients without fully matched donors.[9]

Gene therapy represents an ever-growing frontier in the treatment of IEIs, offering the potential for correction of specific gene mutations in patient-derived haematopoietic stem cells with potentially fewer side-effects. Previous issues with insertional mutagenesis that occurred in early trials using gamma retroviral vectors have been addressed using newer techniques, such lentiviral mediated gene insertion, which offers an improved safety profile. Phase I and II clinical trials have shown promise in the treatment of a number of forms of SCID, as well chronic granulomatous disease (CGD), Wiskott-Aldrich syndrome (WAS) and leukocyte adhesion deficiency, with improved immune function demonstrated in patients.

Pre-clinical studies for numerous other IEIs are also underway using conventional lentiviral gene addition and more targeted gene editing strategies.[10] A base editing approach has been used to correct a mutation in the *CYBB* gene, while prime editing (a newer form of CRISPR-Cas9) has been trialled to correct a specific hot spot mutation in the *NCF1* gene, both of which encode part of the NADPH oxidase complex, defects in which cause X-linked CGD and p47-CGD respectively.[11] First-in-human trials of these, as well as for other IEIs, such as WAS, are on the horizon.[12,13]

Despite the promise that gene therapy holds for treatment of IEIs, there are regulatory hurdles and significant cost barriers that limit the widespread use of gene therapy outside specialised centres. The high cost of treatment development and complex manufacturing processes required for such advanced therapy medicinal products have meant that commercial interest has been limited, particularly when the market population for the treatment is small.[14]

A project is underway at Great Ormond Street Hospital (GOSH), funded by GOSH Children's Charity and LifeArc, to explore whether GOSH could deliver a licensed therapy using its own good manufacturing practice facility in a not-for profit sustainable model, using ADA-SCID gene therapy as an example drug product.

One aim – improving outcomes for children with inborn errors of immunity

Despite these challenges, the potential for AI in the earlier diagnosis of IEIs, advances in genomic medicine and rapidly developing treatment options offer a promising future in the field and paediatric immunology laboratories will continue their work to support this.

References available on our website.

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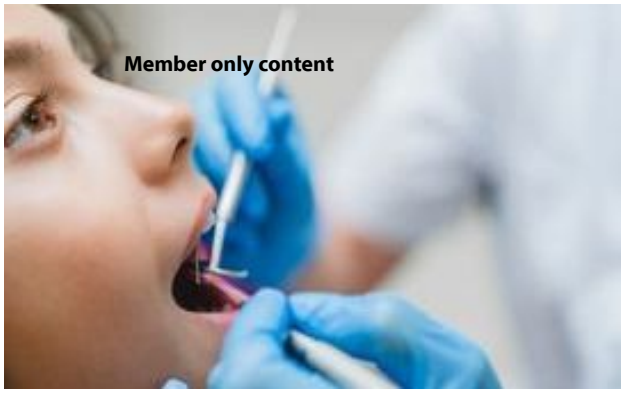

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Challenges in paediatric infection practice

Diagnosing and managing infection in paediatric patients requires special consideration.

Published: 15 January 2025 **Author:** James Hatcher **Read time:** 8 Mins

In this article, James Hatcher of Great Ormond Street Hospital for Children highlights some of the key challenges in paediatric infection practice, focusing on clinical, diagnostic and workforce issues, and exploring examples of how some of these are being addressed.

Box 1. Summary of the main challenges in paediatric infection practice.

Clinical

- Children are often excluded from clinical trials.
- Evidence for efficacy of therapeutics is borrowed from adult medicine.
- Limited guidance exists on antimicrobial stewardship principles.

Diagnostic

- Collection techniques can lead to contamination of samples, such as sputum and mid-stream urine.
- Sample volumes, including blood cultures, are very small, affecting sensitivity.
- Higher rates of colonisation with particular organisms (*Streptococcus pneumoniae, Clostridium difficile)* complicate the interpretation of results compared to adults.

Workforce and recruitment

- No route of entry to laboratory medicine for paediatric trainees.
- Minimal exposure to laboratory medicine in paediatric infectious diseases training.
- Clinical scientist training in paediatrics is variable and institute-dependent.

The provision of infection expertise spans a variety of specialties, involving the disciplines of virology, microbiology, infectious diseases, tropical medicine, infection control and public health. Professional bodies across medicine, nursing and healthcare science provide support and training in these disciplines. Among this complex web, there are specialist areas, such as paediatrics, that need specific infection input due to their unique clinical and diagnostic issues.

The British Infection Association, the Royal College of Pathologists and the Royal College of Physicians published best practice standards for the delivery of NHS infection services in the United Kingdom in 2021.[1] The aim of the document was to provide standards intended as a benchmark for consistent high-quality infection services. The document noted that most infection diagnostic laboratories will process paediatrics samples, which may have different requirements, so they were outside the scope of the standards.

This article highlights some of the key differences between adult and paediatric practice in infection, clinical, diagnostic and workforce challenges, and offers examples of how these challenges are being met.

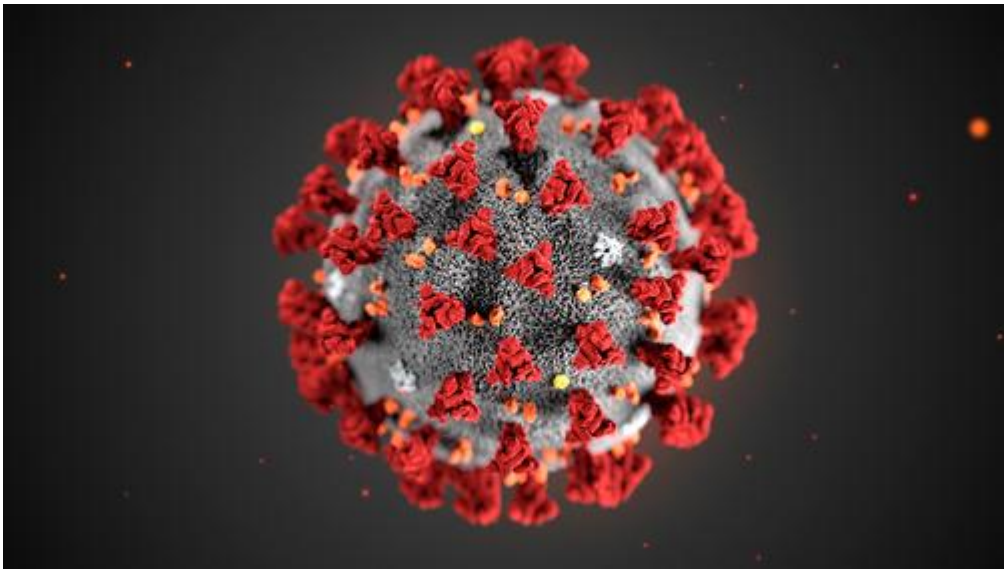
Clinical challenges

Clinical infection management in paediatrics requires specialist knowledge of the differences in clinical presentations, antimicrobial prescribing and therapeutic response compared with adult medicine. Immunodeficiency (primary or secondary) has a profound effect on infection presentation. This is more marked in paediatric practice, which is reflected in the amount of time studying clinical immunology in paediatric infectious diseases training. High-quality evidence on which to base clinical decision-making often lags behind adult practice; there is an unmet need for clinical trials to provide more timely, evidence-informed care in paediatrics.

Paediatric evidence for COVID-19 therapeutics

Prior to the COVID-19 pandemic, an estimated 90% of therapies provided for children were yet to be tested in clinical trials; 62% of paediatric trials were delayed or incomplete.[2] Post-marketing authorisation of therapeutics in paediatrics was much less likely to be completed. This has led to evidence being borrowed from adult practice to assume the efficacy of treatments in many paediatric infectious conditions.

During the COVID-19 pandemic, there was increased advocacy for more diversity in clinical trials, which led to the US Food and Drug Administration publishing guidance on Bayesian trial design to support this. The guidance aimed to encourage the earlier inclusion of paediatric patients in studies and build a more timely and robust evidence base for future therapeutics.



Paediatric testing for COVID-19 therapeutics was limited during the pandemic.

Antimicrobials

The combination of adult and paediatric patients within a whole-of-life clinical trial is exemplified in the ongoing *Staphylococcus aureus* Network Adaptive Platform (SNAP) trial, which contains a paediatric cohort (SNAP-PY).[3] This international, multicentre, pragmatic, adaptive platform trial addresses multiple questions simultaneously and allows information to be shared across trial age groups. Novel trials such as this may go some way towards reducing age-based exclusion in clinical trials.

Antimicrobial stewardship (AMS) and prescribing principles differ in paediatrics. Consumption metrics, benchmarking, pharmacodynamics/pharmacokinetics, formulations, dosing complexities and limited drug approvals remain significant challenges. In addition, antibiotic exposure in children is associated with long-term effects including obesity and inflammation, alterations in the microbiome and increased risk of superadded viral and bacterial infections. The European Committee on Antimicrobial Susceptibility Testing (EUCAST) released guidance on recommended doses (standard and high) of antibiotics for adults in 2016; however, there are still no consensus recommendations for paediatric dosing.

The acknowledgement of differences in AMS and the paucity of international guidance on antimicrobial choice and doses have led to several specific initiatives within the UK. The UK Paediatric Antimicrobial Stewardship network was set up in 2019 to provide a means of shared learning and to develop guidelines.

In partnership with the British Society for Antimicrobial Chemotherapy, a set of pathways for common paediatric infection management and national antimicrobial prescribing guidelines were developed.[4] In 2023, a set of 10 recommendations via multinational consensus was published for AMS in hospital settings for children.[5] This will hopefully provide an achievable framework for benchmarking AMS in the future.

Diagnosing paediatric infections

An article in the July 2021 Bulletin explored the evolution of paediatric laboratory medicine.[6] While paediatric and perinatal pathology is recognised as a separate discipline within histopathology, there is also a need to recognise the distinct differences between adult and paediatric practice across other disciplines, such as clinical biochemistry, haematology, immunology and infection.

There are significant challenges in specimen collection that are unique to paediatrics. Sputum collection is difficult in young children; the use of naso-pharyngeal aspirates can lead to contamination with normal oro-pharyngeal flora. Mid-stream urine samples are the gold standard for diagnosing urinary tract infections but obtaining clean catch urines in young children takes perseverance and is often not possible. Urinary catheter samples are rare in

children, usually used in severe illness or complicated urinary tract pathology or post-surgery; therefore, their relative importance is often greater than in adult practice. Blood volumes for all tests are usually small and paediatric laboratories are set up for specialist handling of low-volume samples.

Blood culture volume is critical for pathogen isolation. The misconception that children have higher levels of bacteraemia than adults, and that thus a lower volume is sufficient, leads to lower diagnostic sensitivity. A large study in Kenya showed that, in children aged <13 years, the proportion of positive blood cultures significantly increased with each millilitre of blood (5.6% at 1 ml, 6.8% at 2 ml and 7.9% at 3 ml).[7]

Paediatric blood culture bottles optimise the blood to broth ratio for low-volume samples and differ in broth formulation to support fastidious organisms. Owing to the low incidence of anaerobic sepsis in children, it remains unclear whether low-volume samples should be split across blood culture bottles or prioritised for more common aerobic organisms.[8]

The interpretation of common diagnostic tests can be significantly different in paediatrics. Asymptomatic carriage of *C. difficile* is common in children, especially under the age of 2 years. While clinical symptoms and therapeutic options are similar to adults, the high rates of viral co-infection and asymptomatic carriage of non-toxin- and toxin-producing strains lead to false positive results and over-treatment. Streptococcal urinary antigen tests are recommended in the diagnosis of moderate or severe community-acquired pneumonia in adults but have low specificity in children due to the high rate of colonising Streptococcal species, which reduces the clinical utility of the tests.[9]

Recruitment – not just little infection specialists

Medical careers in infection have evolved over the past decade to produce more clinically focused physicians. Currently, trainees must complete the foundation programme, a period of internal medicine training and then combined infection training across infectious diseases, medical microbiology/virology and tropical medicine before entering higher specialist training.[10]

Paediatric trainees previously used to be able to enter pathology by training in microbiology; however, this route is no longer available. Interest in paediatrics will, therefore, need to develop within training. There are limited training options and opportunities for exposure to paediatrics compared to adult medicine. This is compounded by a separate paediatric infectious diseases specialty, which has comparatively little exposure to laboratory-based diagnostics.

Clinical scientist training pathways are led by the National School of Healthcare Science and usually start with the Scientist Training Programme (STP) followed by Higher Specialist Scientist Training (HSST) to become a consultant-level clinical scientist.[11]

The STP is a 3-year programme of work-based learning, supported by a university-accredited master's degree. The aim of the STP is to produce graduates possessing the broad knowledge, skills and experience required of a newly qualified clinical scientist. The HSST programme is a bespoke, 5-year training programme supported by a doctorate-level academic award and royal college exams. Exposure to paediatric infection management will often depend on the institution where the trainee is based.

The combination of lack of exposure to paediatrics in both medical and clinical scientist training, no route for paediatricians to enter laboratory-based medicine and lack of exposure to laboratory medicine in paediatric infectious diseases means that future posts in laboratory-based medicine for paediatric infection specialties will be less attractive and may struggle to recruit. This will be especially challenging in standalone paediatric hospitals.

Conclusion

The continued requirement to treat known pathogens in hosts undergoing modern medical interventions, or unknown pathogens such as novel viruses and those with extreme antimicrobial resistance, provides an exciting and evolving field of medicine. Infection expertise needs to adapt to these clinical and diagnostic challenges, while providing a stable workforce.

Clinical trials should include paediatric patients at the outset. Newly established networks must advocate for paediatric AMS at a national level. Future diagnostic methods must be validated for paediatric samples and address low-volume samples, while retaining high levels of accuracy. Finally, professional bodies will need to continue to support this development and work together to address training needs across medical and scientific careers to deliver high-quality infection services into the future.

References available on our website.

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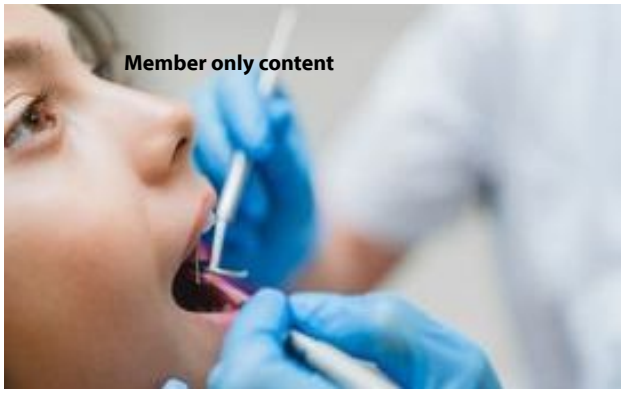

Beyond the tooth: The far-reaching impacts of dental caries

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Beyond the tooth: The far-reaching impacts of dental caries

Dental caries is the most prevalent chronic condition among children. What can be done to tackle this problem?

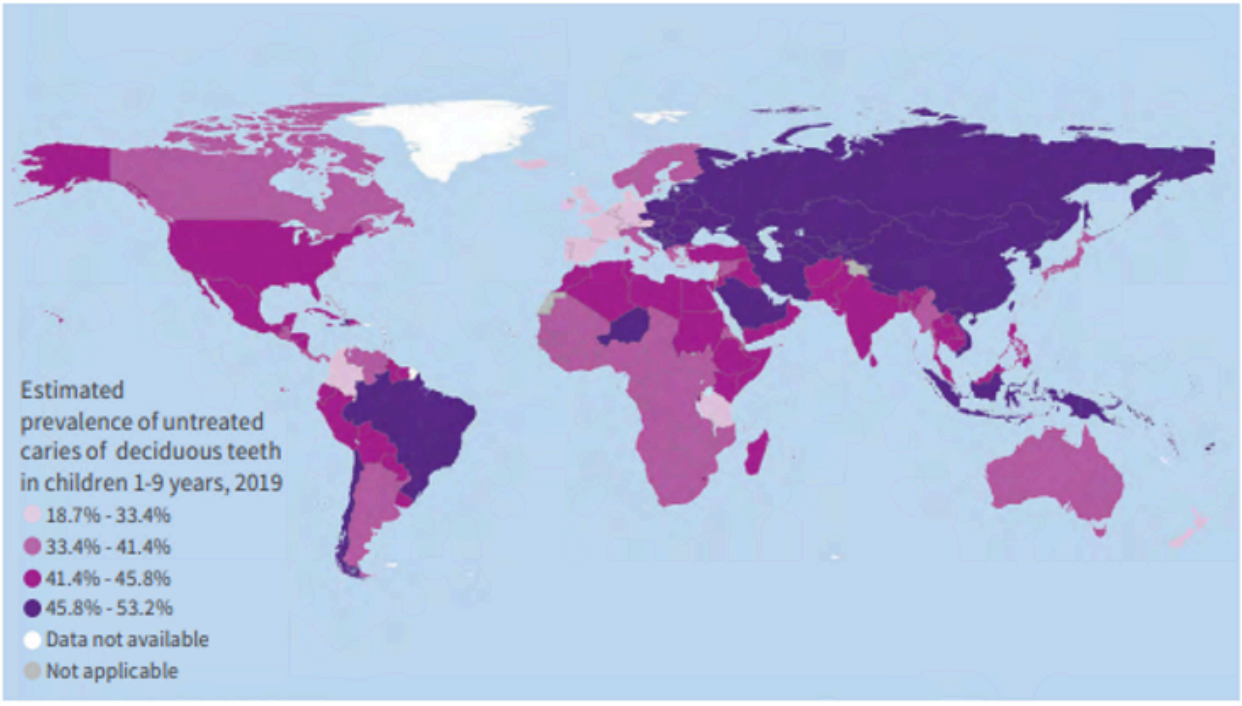
Published: 15 January 2025 **Author:** Rosie May-Bennet,Nikul Patel and Heather Lundbeck
Read time: 15 Mins

In this article, Rosie May-Bennett, dental core trainee, along with Heather Lundbeck, clinical lecturer and honorary registrar in paediatric dentistry, and Nikul Patel, clinical lecturer in oral microbiology, underline the importance of a preventative approach to dental caries in children and good antimicrobial stewardship – antibiotic treatment is not normally indicated.

Dental caries remains a major public health issue, being the most prevalent chronic condition among children[1] and the leading cause of hospital admissions in 6–10 year olds.[2] Moreover, the use of general anaesthesia to manage caries poses significant risks, including potentially life-threatening complications.[3]

Nearly 50% of 0–6 year olds worldwide have caries,[4] accounting for over 500 million children as seen in Figure 1.[5] In 2022, nearly 30% of UK 5-year-olds had caries, with rates reaching 40% in deprived areas.[6] Despite a reduction since 2008, recent data shows an overall regression over the last 7 years,[7,8] likely worsened by pandemic-related declines in dental visits.[9] Furthermore, in Wales over 30% of 5-year-olds have caries, while in Scotland 10% of children have severe caries or an abscess.[8,10]

Figure 1: Estimated prevalence of dental caries of deciduous teeth per country.



Data source: Global Burden of Disease Collaborative Network. GBD 2019. Seattle: IHME; 2020. Map Production: WHO NCD/MND unit. Map Creation Date: 30 August 2022. *Note*. N = 194 countries; data are for children aged 1–9 years, both sexes, from GBD 2019 *(4)*.

Figure 1: Estimated prevalence of dental caries of deciduous teeth per country.[5]

What is caries?

Figure 2: Factors leading to dental caries.

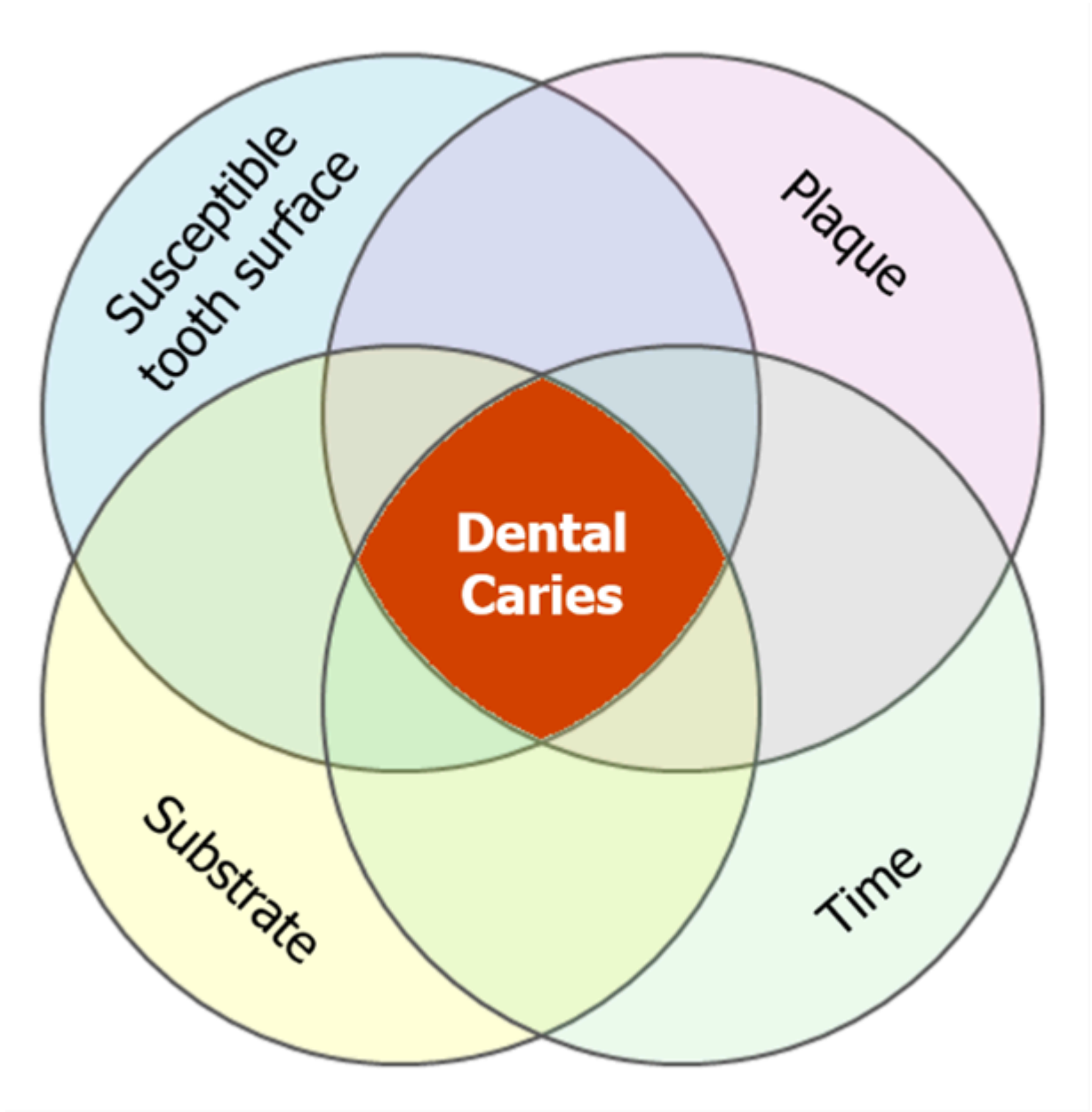


Figure 2: Factors leading to dental caries.[11]

Dental caries, the most common non-communicable disease globally, requires 4 elements to occur: a susceptible tooth surface, plaque, time and substrate (Figure 2). As such, poor oral hygiene, high sugar intake and low pH are substantial risk factors for caries.[11]

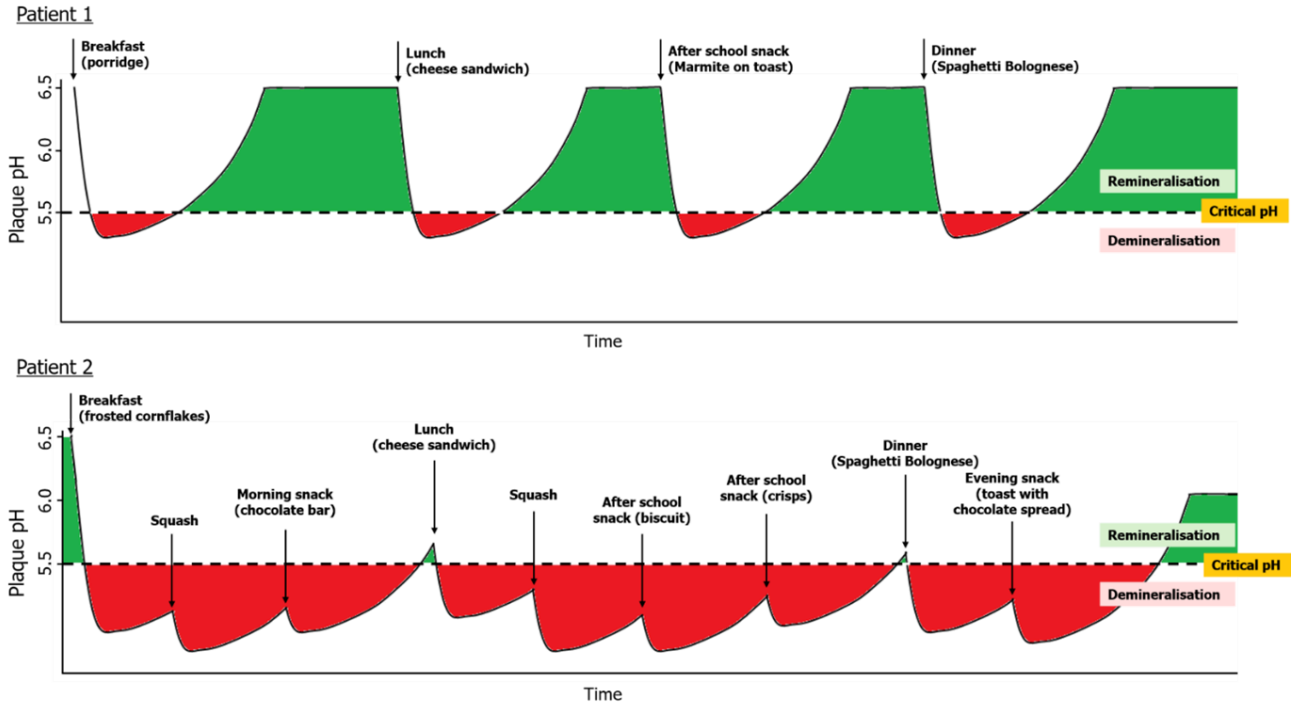
What causes caries?

Streptococcus mutans, *Streptococcus sobrinus* and lactobacilli are the predominant species responsible for caries. The Ecological Plaque Hypothesis explains the shift from health to disease as pathogenic species out-compete symbiotic ones, creating a microbial imbalance within the plaque biofilm. This results in a disease state, in this case, caries. In 1943, Stephan described a phenomenon whereby the plaque biofilm exhibits a rapid and substantial drop in pH following a sugar rinse, caused by acid production from bacterial digestion of fermentable carbohydrates.[12,13] Dental enamel has a 'critical' pH of 5.5, beyond which it will dissolve. Figure 3 shows the effect of frequent snacking of sugary foods on the pH of the biofilm at the tooth surface.

Patient 1 demonstrates a healthy diet of 3 main meals with a single low-sugar snack. Their plaque pH only fleetingly drops below the critical pH, giving little opportunity for demineralisation. Many hours spent in the green indicates ample time in a higher pH environment, allowing teeth to remineralise.

Patient 2 is high-risk for caries. They are prone to grazing on foods and sipping sugary drinks throughout the day. The high sugar foods lead to a more significant drop in pH and the increased frequency of sugar results in an almost constant acid attack. With minimal opportunity for the pH to return to a safe level, demineralisation outweighs remineralisation, while also providing the pathogenic bacteria with abundant carbohydrate, contributing further to the caries disease process.

Figure 3: Modified Stephan Curves highlighting the impact of frequent sugary snacks.



Carious lesions can be described as initial, moderate or extensive depending on the depth to which the caries has penetrated (see Figure 4). We now know that earlier lesions can remineralise without the need for any removal of tooth structure, unlike a conventional filling. Fluoride works in 3 ways to achieve this: it inhibits enolase (a bacterial glycolysis enzyme), makes bacteria less tolerant to acids by modifying membrane permeability,[14] and becomes incorporated within dental enamel during remineralisation. Under favourable conditions, fluorapatite (a fluoride-enamel hybrid) forms making the surface stronger against caries. The pH at which caries begins to take place changes from 5.5 to 4.5, thus making the tooth more resistant to the disease.[15,16]

Treatment

Reversal of caries is important, as most fillings require replacement due to secondary caries or marginal breakdown, where new caries begins between the filling and the tooth. With each replacement, the filling becomes larger. This leads to more invasive procedures such as root canal treatment, which isn't always successful, and eventually tooth loss. A visual representation of this is demonstrated in Figure 5.[17,18]

Dental treatment also costs money. Those most affected by caries, commonly from a lower socio-economic background, often cannot afford dental treatment and are more likely to opt to remove the tooth when free or affordable care is not available.

In children, the impacts of early tooth loss include crowding or impaction of permanent teeth, leading to orthodontic treatment. It can also cause low self-esteem due to poor aesthetics.

Figure 4: Stages of caries as per the International Caries Classification and Management System.

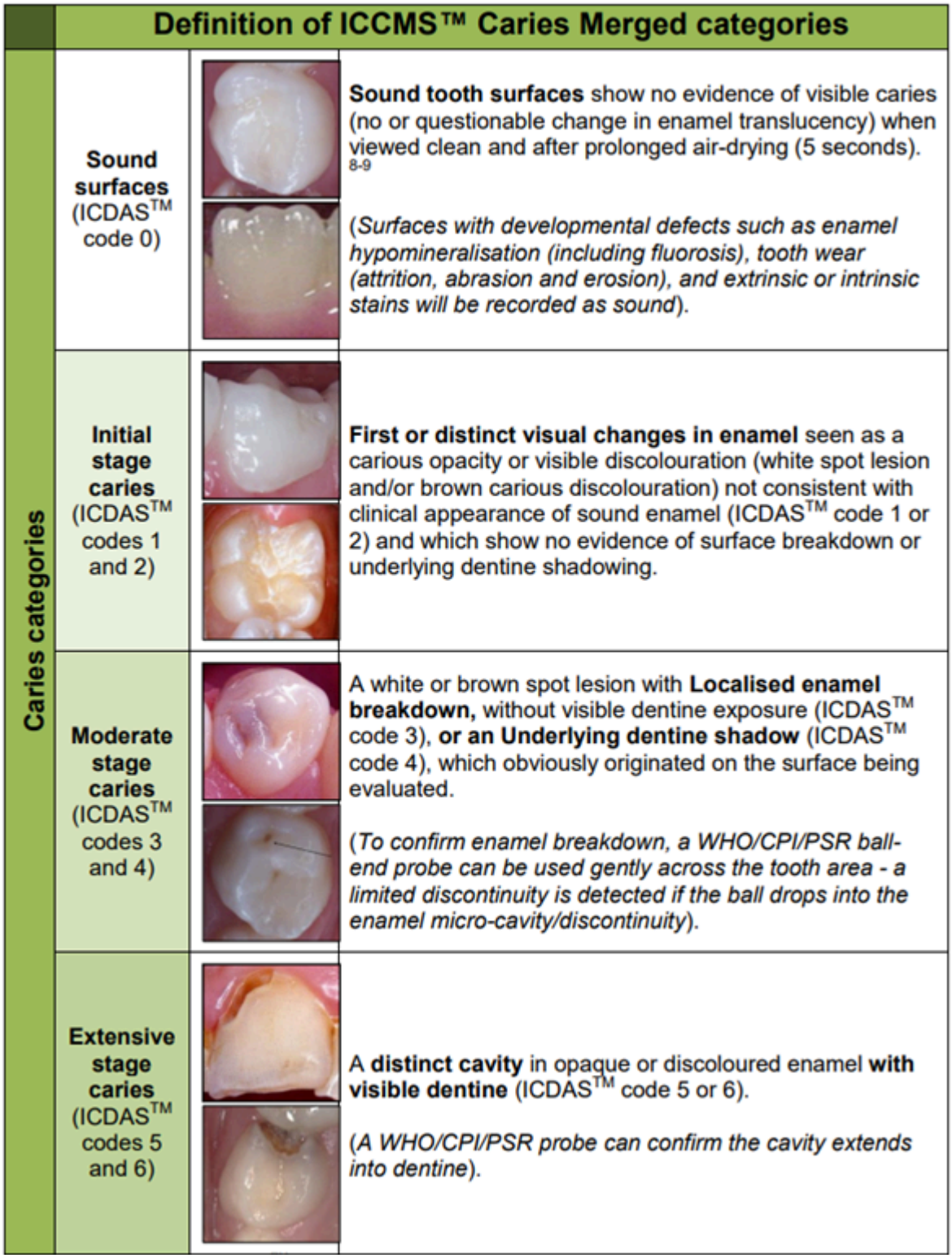


Figure 4: Stages of caries as per the International Caries Classification and Management System.[18]

Figure 5: The restorative cycle.

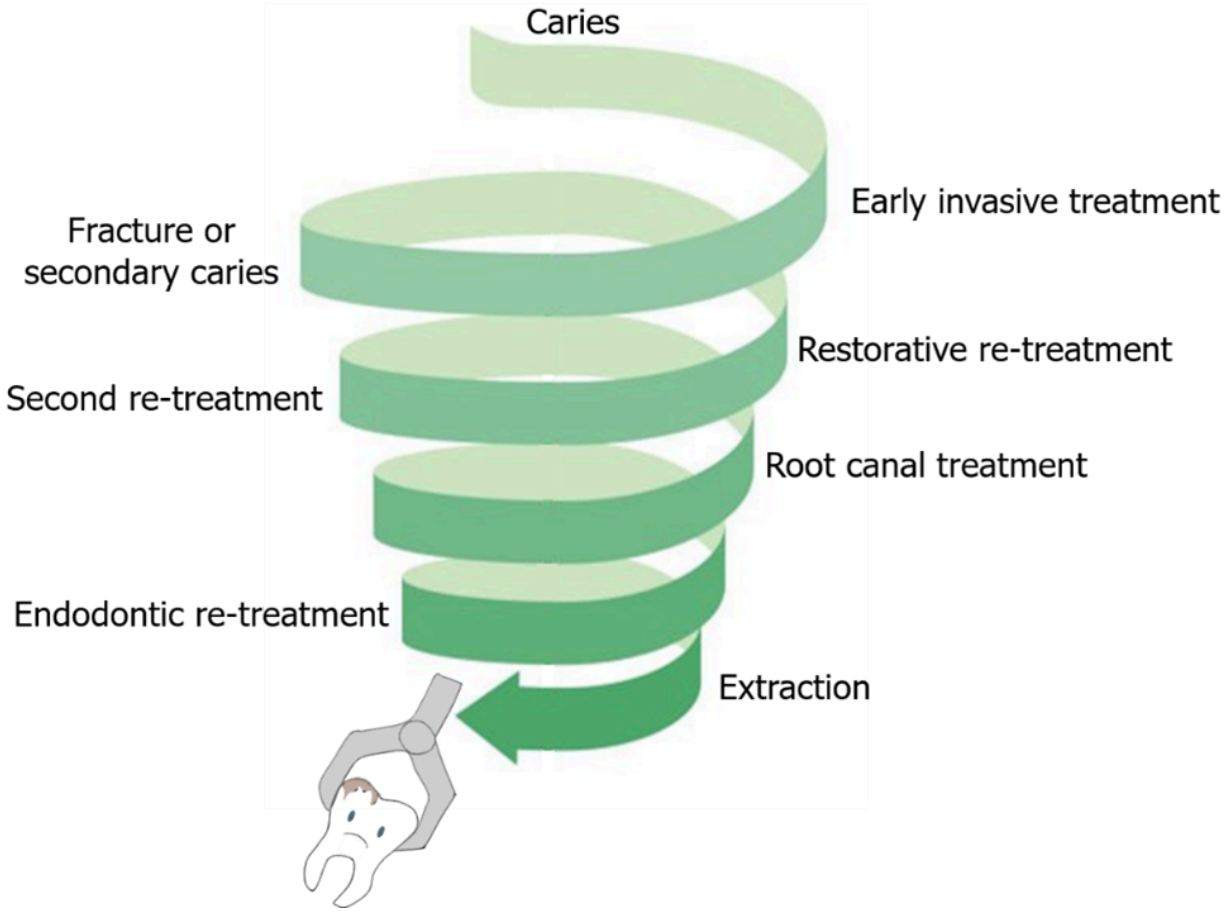


Figure 5: The restorative cycle.[17]

The impact of caries

Knock-on effects of caries are vast; health issues are a drop in the ocean. From psychosocial consequences to environmental impacts to financial loss, there is an abundance of negative outcomes.

In the academic year 2022/2023, over 1 in 10 Year 6 students reported dental pain and nearly 20% of parents felt it affected their child's quality of life.[8,20] Paediatric patients in pain are often pre-cooperative (anxious and fidgety), making chairside dental treatment impossible. Therefore, parents often seek antibiotics believing these will help their child's pain. These are not indicated and will not be effective unless a systemic infection is present. Dentists are responsible for over 10% of antibiotic prescriptions.[21] With antibiotic resistance on the rise, antimicrobial stewardship and appropriate prescribing is crucial.

Children requiring procedures under general anaesthetic are added to waiting lists but remain in pain unless they cooperate for treatment, until the tooth dies. Even then, there is potential to flare up again and cause further discomfort. This can affect their eating and drinking, possibly increasing the risk of developing nutritional deficiencies due to selective eating. This may be the beginning of a cycle of further worsening oral health; malnutrition is positively associated with worse oral health outcomes.[23] Wider effects of chronic dental pain are highlighted in Figure 6.

Figure 6: Wider effects of childhood caries.

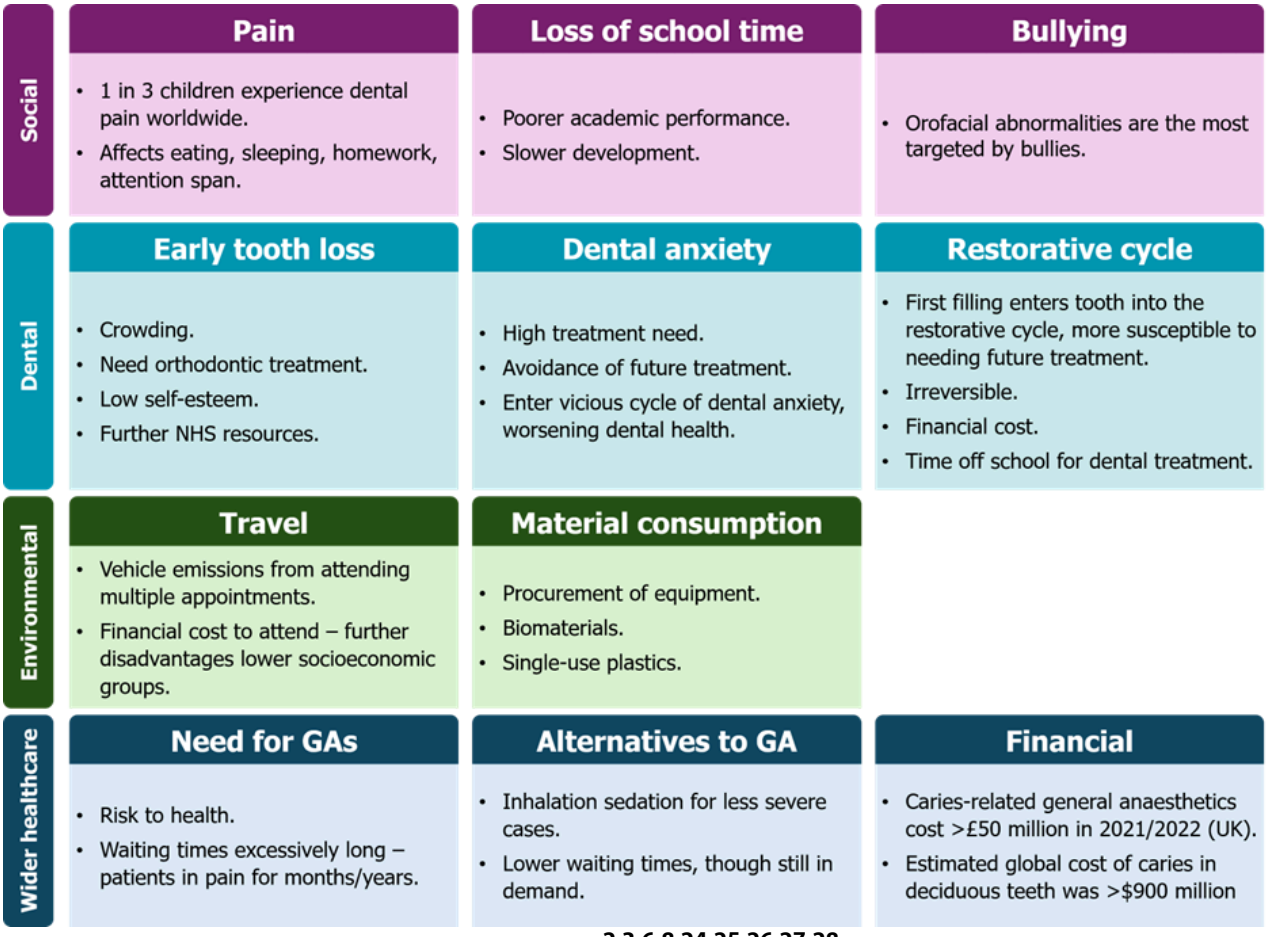


Figure 6: Wider effects of childhood caries.[2,3,6,8,24,25,26,27,28]

Prevention

Prevention efforts in healthcare are often classed as upstream, mid-stream or downstream. See Figure 7 for some examples of current UK schemes.

Figure 7: Examples of Public Health initiatives and dental chairside interventions to reduce and manage caries.

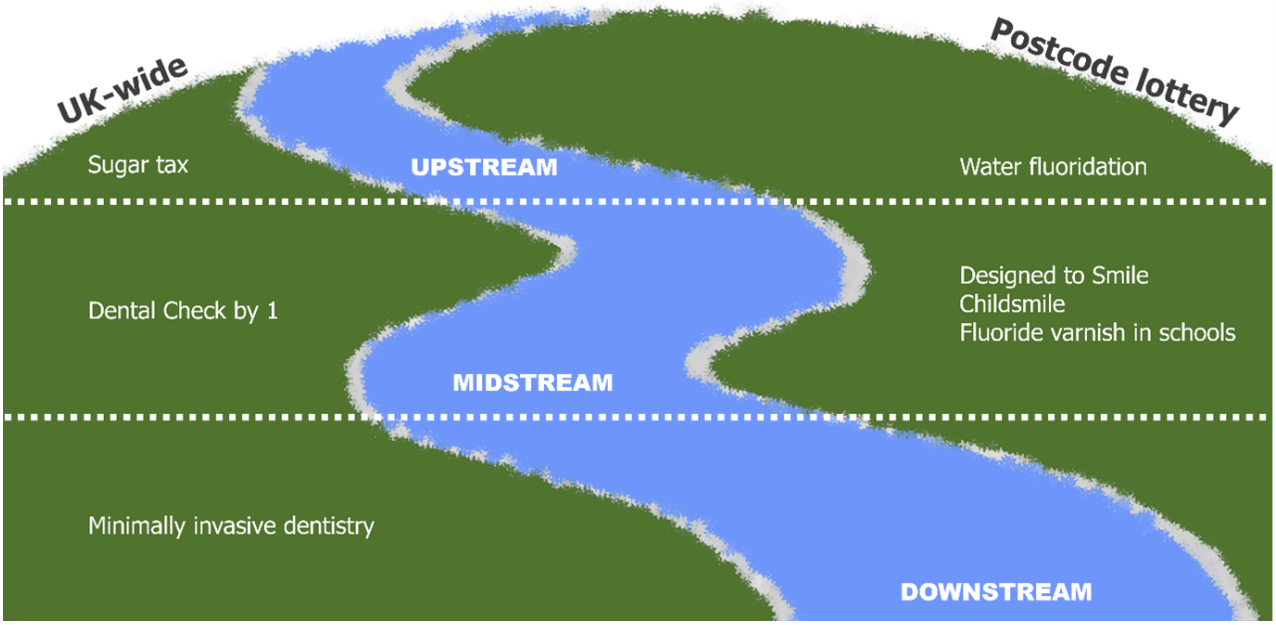


Figure 7: Examples of Public Health initiatives and dental chairside interventions to reduce and manage caries.[18,29,30,31,32]

Sugar tax

The UK Government introduced a Soft Drinks Industry Levy in April 2018, increasing tax on companies producing high-sugar drinks. This forms part of a larger campaign to combat obesity by discouraging such drinks and using the tax revenue to fund physical activity in schools.[30] Anecdotally, the sugar tax delivered dental health benefits too, though sadly no funding has been translated to dental care, which is often overlooked for healthcare funding.

A review of the levy was recently announced, proposing changes including lowering the existing high sugar threshold and creating a new tax band for drinks containing >10g sugar/100ml. It is unclear where this additional revenue will be allocated.[33]

Water fluoridation

Despite its proven benefits in preventing caries, especially in children, water fluoridation has a tumultuous history.[34] The World Health Organization stipulates fluoride levels in drinking water should not exceed 1.5 mg/L; water fluoridation schemes usually aim for 1 mg/L.[35] In England, only 10% of the water supply is fluoridated to at least 0.7 mg/L, while Scotland, Wales and Northern Ireland have no water fluoridation schemes.[36] Public Health England hypothesised that if fluoride concentrations increased from 0.2 mg/L to 0.7 mg/L, caries could be reduced by up to 28% in the most deprived groups.[34,37]

Arguments against water fluoridation include increased fluoride during tooth development can causing dental fluorosis, where teeth become mottled or discoloured. However, this is unlikely at the proposed low dose.[38] Other anecdotal associations include neurological harm and hypertension, though this evidence is low-quality.[39]

Public health programmes

Designed to Smile and Childsmile are public health programmes which deliver toothbrushing support in schools across Wales and Scotland respectively. During the last academic year, Designed to Smile distributed over 160,000 toothbrushing packs, with nearly 60,000 children participating in toothbrushing programmes in primary school or nursery.[31] In Scotland, 50% of primary schools and 86% of nurseries participated in Childsmile's toothbrushing programme in 2022/2023.[32] Due to their preventative success, these initiatives should be seen as cost-saving investments (Figure 8). For example, nursery toothbrushing schemes in Scotland cost Childsmile £1.8 million per year, though after 8 years of investment, the savings are estimated to be over 2.5 times this amount every year.[40]

Figure 8: Costs versus expected savings of Childsmile.

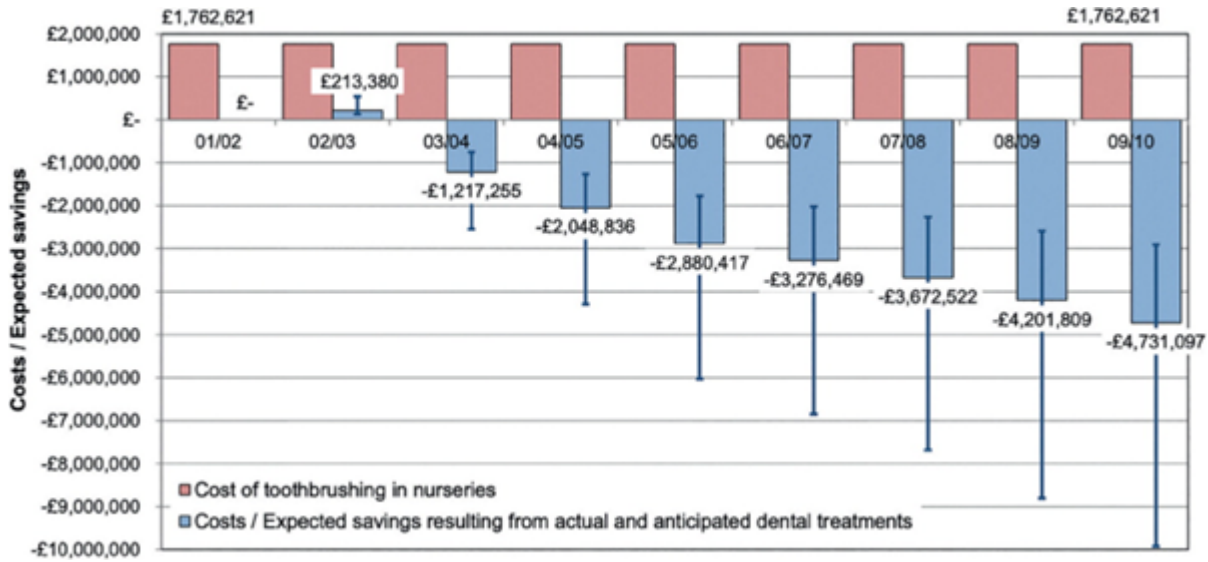


Figure 8: Costs versus expected savings of Childsmile.[39]

It is crucial that families receive support early, as prevention is preferred to treatment. The British Society of Paediatric Dentistry endorses 'Dental Check by One' (DCby1), encouraging children to be seen by a dentist by the age of 1.[29] DCby1 equips dentists with strategies to better manage 'pre-cooperative' children, e.g. allowing the patient to sit on their parent's lap for examination.[41]

Tips, tricks and take-homes

It's safe to say that no matter the area of healthcare, prevention is better than cure. Caries is largely preventable with excellent oral hygiene and frequent fluoride exposure. People at high risk of caries also share risk factors for other diseases, such as diabetes, therefore it is vital that all healthcare professionals 'make every contact count' by delivering key preventative messages, as given in Figure 9.[42]

Figure 9: Basic caries prevention aids.

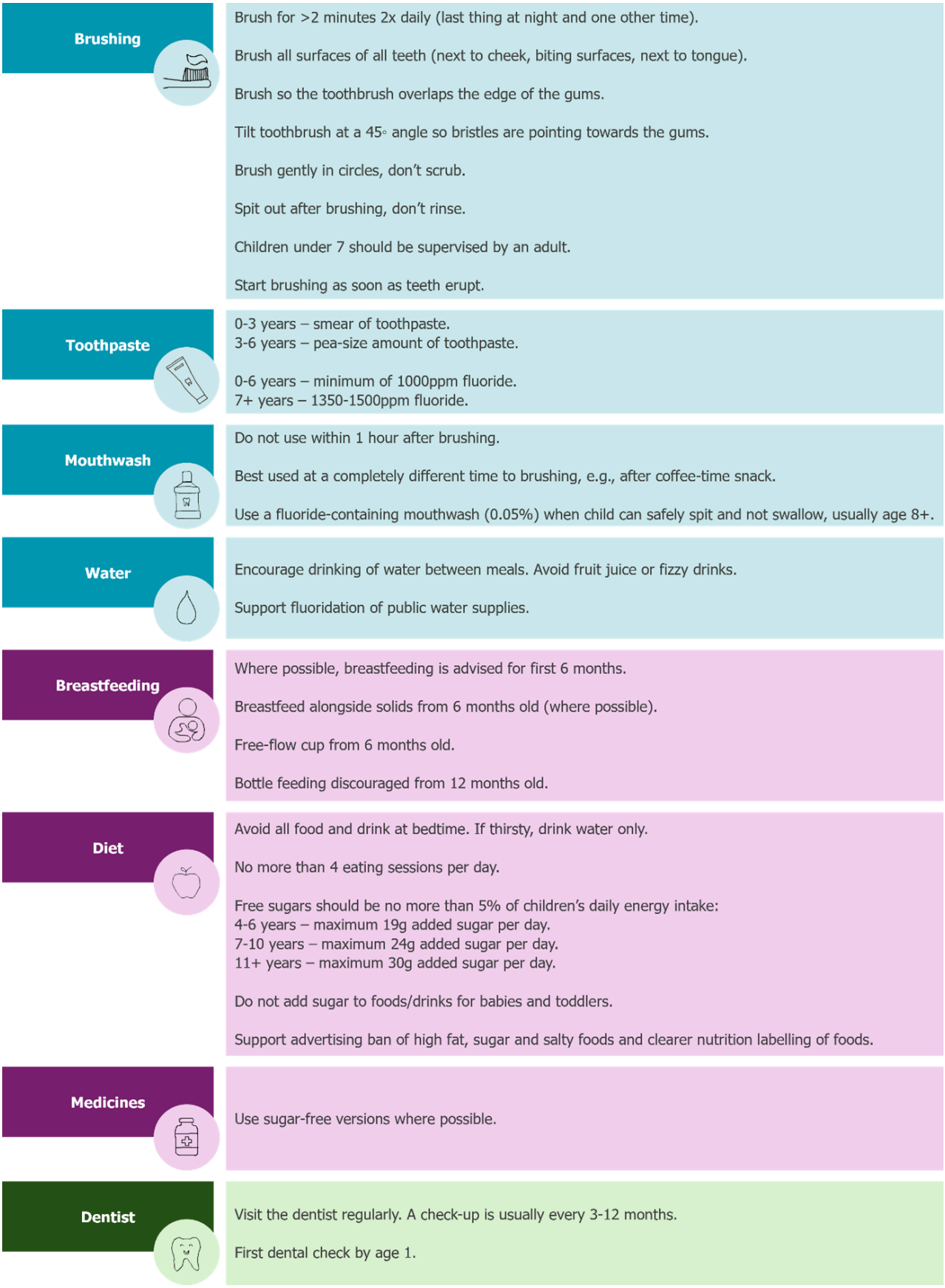


Figure 9: Basic caries prevention aids.[35,42,43,44]

It is no secret that accessing an NHS dentist is challenging at present. Patients may seek antibiotics from GPs for dental pain and it must be reiterated that these cannot cure toothache. Medical practitioners should advise for patients to contact NHS 111 for emergency treatment,

e.g. severe dental pain or facial swelling, if they are not registered with a general dental practitioner.[46–49]

By emphasising the importance of the aforementioned habits, we should all be able to make a positive impact on children's dental health.

References available on our website.

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Challenges in paediatric laboratory medicine

Laboratory services must support the specific requirements of paediatric laboratory medicine.

Published: 15 January 2025 **Author:** Tim Lang **Read time:** 9 Mins

In this article, Tim Lang of Newcastle-upon-Tyne NHS Foundation Trust explains the requirements of paediatric patients in laboratory medicine, from diagnosing and identifying risk factors to developing adequate testing and sampling technologies.

Paediatric laboratory medicine (PLM) must continue to expand to meet the needs of this special patient group and evolve for the future. PLM has been at the forefront of the development and adoption of emerging technologies that ensure that the patient's journey through early life to adulthood allows them to reach their full health potential. Any laboratory service that supports a healthcare facility where a neonate, infant, child or adolescent may attend must be aware of the specific requirements and issues associated with this patient group. Expanding access to appropriate laboratory services to support the paediatric patient group is essential, especially to populations excluded due to socioeconomic or geographical reasons.

Emerging technologies

Over the past 10 years, there has been a rapid adoption of emerging technologies, including genomics and artificial intelligence/machine learning, to address some of the longstanding diagnostic challenges that this population has faced. However, laboratory services and diagnostics manufacturers also need to remain aware of issues such as sample volume, assay calibration, resource availability and the emergence of new and old diseases.[1]

During the first weeks of life, PLM has an important role in supporting the transition from foetal development to self-regulating homeostasis, in addition to identifying pre-symptomatic but treatable conditions through newborn blood spot screening (NBS). There have been many

advances in NBS recently in the UK, with the planned addition of tyrosinaemia type 1 expected and an in-service evaluation in progress for severe combined immunodeficiency. The machine-learning-based technique of computer vision has been developed to support the process of accurately identifying adequate newborn blood spots and shows promise.[2] Given the improved accessibility and affordability of whole genome sequencing, Genomics England has embarked on the Generation Study, which plans to sequence the genomes of 100,000 babies to improve the ability to diagnose and treat over 200 genetic conditions.

Identifying risks in neonates

During the first few days of life, the neonate is exposed to several conditions or risks that may cause potential short- and long-term harm if not identified immediately. PLM's role is to support the clinical team in detecting and accurately quantifying biomarkers, such as bilirubin and glucose, to enable appropriate management. Recognising and quantifying neonatal jaundice remains a challenge, even for an established laboratory service, given the known biases of the common clinical chemistry analyser methods.[3] While transcutaneous bilirubinometers are now established in practice, providing a non-invasive method of quantitating bilirubin concentrations, they still lack the necessary analytical performance at the concentrations required for active treatment, such as phototherapy or exchange transfusion.

Future use of biosensors linked to smartphone technology may provide an affordable and accessible solution in lower- and middle-income countries where access to laboratory-standard analysis may not be readily available in a timely manner. However, education is also essential to ensure that the associated risks in neonates are identified so that treatments can be initiated promptly.

This is also the case in identifying infants at risk of neonatal hypoglycaemia, where the symptoms can be non-specific or even silent. The actual glucose concentration at which harm is done remains undetermined; however, to prevent harm, action limits have been proposed to ensure appropriate treatment is initiated, such as glucose gels as advised by the Sugar Babies Study in New Zealand. Monitoring biomarkers in this specific population often requires repeated phlebotomy, which can potentially result in iatrogenic anaemia.[4,5]

Paediatric laboratory medicine supports the patient journey from early life to adulthood.

Adapting tests for paediatric patients

The majority of laboratory-based multi-channel analysers are designed for the adult population, so there is normally a requirement for volumes greater than 100 µl to perform a set of tests. While the drive to be more sustainable and reduce waste has reduced the volume required for these analysers, development of novel techniques that require a minimal amount of blood is still needed. Point-of-care testing (POCT) solutions have addressed some of these issues, but few have been specifically designed with the neonatal/paediatric population in mind to meet the required performance criteria for practice.

A development using an existing POCT solution originally designed for adult use is showing promise in the monitoring of neonatal glucose concentrations using continuous glucose monitoring sensors. This technology is being used to address some of the uncertainty of neonatal glucose homeostasis and is being coupled with glucose infusions and insulin pumps to prevent hypoglycaemia in at-risk infants.[6]

Sepsis is another important clinical episode that neonates and infants may be exposed to, and which requires immediate identification and management. Machine learning is being used to identify the best diagnostic biomarkers/clinical signs to identify sepsis and those at risk of it.[7] With the improvements in, and increased access to, benchtop genomic analysers, clinicians can now identify the pathogenic organisms in a significantly shorter timeframe at the bedside and also avoid potentially unnecessary antibiotic use, having learned from the experience of the COVID-19 pandemic.

Challenges in paediatric sampling and referencing

Most laboratories supporting a neonatal or paediatric population are based in hospitals serving a predominantly adult population, including some regional specialist children's hospitals. In most cases, paediatric samples need to be dealt with differently from adult samples, owing to the volume of sample available and how they are collected. Conversely, the majority of assays on the common multi-channel clinical chemistry and immunoassay analysers require a significant volume of blood that may not always be available owing to the size of the patient. Therefore, manufacturers must develop assays with smaller volume requirements but the same diagnostic accuracy.

In addition, there is a push to improve collection devices to ensure the best quality samples are obtained with the minimum of distress to the patient and that do not require the patient to attend the hospital for collection. For example, Capitainers, a micro-sampling device, are being used to collect samples for phenylalanine monitoring in some patients with phenylketonuria without the need for clinic attendance. Alternatively, different matrices – ideally those collected non-invasively – are being used to investigate conditions which have traditionally used blood samples.

Emerging technologies have allowed matrices such as saliva, faeces, hair and sweat to be used to address a variety of conditions, including malaria detection, heavy metal poisoning and pre-natal drug exposure. Similarly, microassays that can provide accurate and rapid diagnostic answers continue to be developed that require even smaller volumes (<10–100 uL).

Sample integrity and pre-analytic artifacts are also important when managing paediatric samples. Long-standing procedures are beginning to be challenged so that potentially lifesaving management decisions are not delayed. For example, recent research from my own laboratory by Dr Ann Bowron and Dr Gavin Mercer-Smith has shown that samples for ammonia no longer need to be collected or transported on ice.[8]

From the post-analytical perspective, it is essential that the laboratory provides appropriate age-related reference ranges or cut-offs that are suitable for the paediatric population. Large-scale initiatives, such as the Canadian Laboratory Initiative on Pediatric Reference Intervals (CALIPER), using direct reference range production methodologies have become universally accepted.[9] However, newer indirect methodologies are now being used that use data-mining processes to create more population-specific reference ranges where it may not be ethical or practical to use the direct approach of sampling individuals.

It is important to remember that the laboratory must assess the suitability of the reference range and validate it in its own population, as per Clinical and Laboratory Standards Institute guidance. An example to highlight this is using the CALIPER ranges to diagnose folate deficiency. These ranges were produced from a population where there was fortification of flour with folate; however, the UK currently does not routinely fortify flour with folate, so this range may overestimate the number of deficient individuals if using a higher lower limit of normal produced from a folate-replete population.

Supporting patients from earlier life to adulthood

The last 5 years has seen the emergence of new and the re-emergence of old diseases impacting on PLM. The COVID-19 pandemic significantly impacted all laboratory services but especially screening programmes.[10] The burden of later presentations of common childhood diseases resulted in potentially worse outcomes. Planning for staff contingencies, working differently and reagent availability were highlighted as areas to learn from. The laboratory also needs to be aware of the recurrence of old diseases due to poor nutrition, and cultural and lifestyle choices, and how diagnostic pathways may need to be reintroduced. For example, cases of scurvy (vitamin C deficiency) are being identified, requiring access to appropriate specialist analysis.

In summary, PLM continues to have an important role in supporting the patient journey from early life to adulthood through adopting new and emerging technologies. Through these advances, it will be best placed to ensure that appropriate laboratory services are accessible to all, including those from geographically remote and socially deprived areas, to ensure best patient outcomes.

References available on our website.

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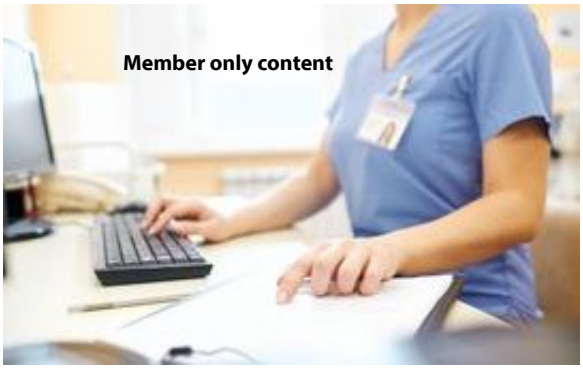

Learning points from the Synnovis cyber-attack from the Pathology Informatics Committee

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

New developments in childhood vaccination and immunisation in England

Important changes to the routine childhood vaccination schedule are underway.

Published: 15 January 2025 **Author:** Sharif Ismail and Julie Yates **Read time:** 12 Mins

Vaccination is one of the most effective public health interventions available, yet coverage across many of the routine childhood programmes across the UK has been steadily declining. In this article, Sharif Ismail and Julie Yates from the UK Health Security Agency discuss some of the long-term challenges for vaccine preventable disease prevention and control in England and review key recent and upcoming changes to the routine schedule for children and young people.

Globally, vaccination is the most effective public health infectious diseases intervention, ranking second only to clean water for disease prevention. One hundred years ago, the biggest threat to life in people under the age of 35 was infection; it is now external factors. The economic benefits of vaccination are substantial. They can be found both in direct savings to the NHS[1] and sizeable, wider returns on investment when compared with most other classes of public health intervention in terms of educational attainment, economic productivity and other outcomes.[2]

In this article, we provide an update on key recent and impending changes to national vaccination programmes for children and young people and an overview of ongoing work with partners across the immunisation system in England, to bolster uptake and to reduce inequities in outcomes from vaccine-preventable disease (VPD).

Current challenges in prevention and control of vaccine preventable disease

The challenge of steadily declining uptake of childhood vaccination

Although vaccination uptake through routine programmes in England is high by international standards, there has been a progressive decline in coverage of all vaccines (mirrored across the other devolved administrations) each year since 2013.[3] The cumulative effect of this is now significant.

There are many reasons for this decline. We know from wider research evidence that there are important variations in uptake between and across populations although the causes for this vary by geography, ability to access services, deprivation and many other factors. Observed declines have unfortunately also been accelerated by disruption during the pandemic. In addition, the service delivery landscape for immunisation has seen significant organisational change, most significantly in 2013, but most recently in preparation for delegation of commissioning responsibilities for vaccination to Integrated Care Boards by April 2026.

Encouragingly, though, the UK Health Security Agency's (UKHSA) attitudinal survey work continues to show high levels of confidence in both vaccination and those who deliver vaccines among both parents and young people.[4,5] This underscores the importance of ensuring best access to vaccination for children and young people and of health professional advocacy, given that the NHS remains the most trusted source of information on vaccines.

Long-term effects of the COVID-19 pandemic

The long-term impacts of returning to regular patterns of social mixing following the pandemic, changes in population-level immunity resulting from COVID-19 related restrictions and disruptions to delivery of routine immunisation throughout 2020–21 continue to influence the picture for VPDs in England. In 2023–24, we have seen 2 substantial outbreaks of VPDs with established vaccination programmes, both linked in part to long-term pandemic effects and declines in vaccine uptake.

There was a rapid increase in measles cases in late 2023 driven by a large outbreak in Birmingham, with subsequent increase in London and small clusters in other regions.[6] Case counts have followed a downward trajectory since mid-July 2024 but small, localised outbreaks continue. Most cases have occurred in unvaccinated children under 10 years old. UKHSA continue to raise awareness of measles and the importance of vaccination, targeting vaccination activity in areas at risk of outbreaks, and there is evidence of positive impacts from work across the health system to improve measles, mumps and rubella (MMR) vaccination uptake in this context.[7]

Similarly, from late 2023 onwards, a surge in laboratory-confirmed pertussis cases was observed nationwide.[8] Although case numbers have now considerably reduced, pertussis activity remains high by historical standards. The current outbreak is the largest seen since 2012 and tragically included 10 infant deaths in 2024. Much of the work of UKHSA and partners in recent months has focused on bolstering uptake through the maternal pertussis vaccination programme to ensure the best protection is offered to the youngest infants who are most vulnerable to severe outcomes from infection, but also too young to have developed protection of their own through

childhood immunisation. In common with the childhood programmes, uptake of this programme had been steadily declining in recent years.[9] Recent evidence on the effectiveness of maternal vaccination continues to show that it offers excellent protection against severe outcomes for infants.

Recent and planned changes to the national immunisation schedule

The routine vaccination schedule for children and young people in the UK has changed dramatically since its inception.[10] The pace of change has also increased since 2000, as the scope in terms of diseases able to be targeted has increased. In addition to new vaccines, the national programme undergoes clinically significant changes at least once a year (for example, changes in scheduled ages, increases in eligible populations or use of an updated or reprocured vaccine product).

Recent changes to the schedule

There have been important changes to the national schedule relevant to children and young people over the past year. For pregnant women, for example, a change was implemented from July 2024 to the vaccine product used in the prenatal pertussis vaccination programme[11] to move to the Tdap vaccine ADACEL. This was in light of emerging evidence that maternal vaccination using inactivated polio-containing vaccines makes infant response to polio vaccination received as part of the routine schedule less effective.[12] A wholly new programme for RSV vaccination in pregnancy,[13] alongside a programme for those aged 75–79 years, has also been introduced for the first time from this autumn, in recognition of the burden of mortality and morbidity among the youngest and oldest caused by this virus. This programme has the potential to transform the picture for RSV prevention and control, with significant implications for children and young people's wellbeing, and for health services, especially during the winter months.

For adolescents, the HPV vaccination[14] schedule changed from September 2023, moving from the previously recommended 2 doses to a single-dose schedule, in light of evidence[15] on both the effectiveness and duration of protection accruing from single-dose administration. This change will hopefully improve resilience in the national HPV vaccination programme by reducing the number of individual health service contacts required for eligible adolescents to complete their vaccination course, strengthening the impact of this highly effective vaccine.

Schedule changes in progress

Further changes are due for implementation over the coming 18 months. For example, a combined vaccine for *Haemophilus influenzae* type b/meningococcal C vaccine was introduced into the routine childhood immunisation programme in 2006, and the adolescent meningitis

ACWY programme has shown remarkable success in controlling meningococcal C (MenC) disease across the population.

However, the discontinuation of Menitorix (Hib/MenC) vaccine production, currently given at 12 months of age, has also prompted new JCVI recommendations,[16] including that a dose of MenC-containing vaccine is no longer advised at 12 months, and that an additional dose of Hib-containing multivalent vaccine should be given at 18 months. This latter change requires the creation of a new 18-month routine immunisation appointment, with the further JCVI recommendation that the second dose of MMR vaccine should be brought forwards from 3 years 4 months to 18 months of age to improve vaccination coverage. Work is currently underway to plan for these changes, including the use of hepatitis B containing vaccine (as the hexavalent DTaP/IPV/Hib/HepB) at the 18-month visit, which means that there will no longer be a need for babies of high-risk mothers to receive a monovalent Hep B vaccine at 12 months. A wide range of resources are being developed to support the implementation of these changes which are planned to come into effect in July 2025 and January 2026.

Strengthening immunisation outcomes for all

Ensuring the best immunisation outcomes for all children and young people is crucial to giving them the best opportunities to lead a healthy life, no matter where they live or who they are. Doing so depends on partners across the health system working together effectively across a whole range of areas, drawing on current best evidence: not just on vaccination delivery.[17]

Alongside many other activities, improving immunisation outcomes relies on:

- providing accurate and timely advice to parents and young people to inform decisions on vaccination uptake (including using UKHSA-developed resources[18] for different patient groups, especially for groups most at-risk[19])
- delivering the right vaccines to the right people, at the right time
- promptly identifying and acting on cases and outbreaks of notifiable, vaccine-preventable disease[20]
- optimising post-exposure prophylaxis for relevant VPDs
- gathering data to inform public health surveillance.

We recognise the vital contribution frontline clinicians make across all these areas and will continue to work with colleagues from RCPath and elsewhere emphasising the importance of timely and complete vaccination uptake across the routine programmes.

Addressing overall trends to declining vaccination coverage is a key, strategic priority for UKHSA and our partners in the NHS and other organisations, and a central driver for action under the NHS' vaccination strategy.[21] We also continue to work to reduce inequities in immunisation

outcomes through implementation of our Inequalities Strategy[22] – which is currently being updated. The updated strategy will emphasise the importance of ensuring the core national vaccination programmes are as strong as possible, because improving vaccination coverage overall helps protect everyone through herd protection and other mechanisms, and because we know that the positive impact of routine vaccination tends to be greater among the most vulnerable.[23]

This is an exciting and dynamic time for childhood immunisation programmes, with important, long-term challenges needing to be addressed to ensure appropriate protection for all children and young people. Close collaboration between clinicians, health services, community leaders and the public will be essential to maximising the benefits that all children and young people can gain from immunisation.

References available on our website.

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

Innovation in paediatric and perinatal pathology

This article explains how paediatric and perinatal pathologists are harnessing new technologies and working collaboratively to optimise care for children and their families.

Published: 15 January 2025
Author: Dr Rachel Rummery, Dr Liz Hook, Dr Kerry Turner and Dr Jens Stahlschmidt **Read time:** 10 Mins

Paediatric and perinatal pathology is one of the United Kingdom's smallest specialties, with approximately 55 consultants practising in around 20 tertiary centres throughout the UK. Within the Royal College of Pathologists, it is a subspecialty of histopathology. It comprises 3 main areas; surgical pathology, which encompasses a very broad range of specimens from neonates to teenagers; fetal, perinatal and paediatric post-mortems (including both coronial and forensic), and placental pathology.[1]

Workforce challenges

Much of the recent discussion around paediatric and perinatal pathology has focused on the workforce challenges it is facing. These are profound; of the estimated 80 consultant posts required nationally, approximately 30% are vacant, with a small pool of around 10 trainees. There is also inequity in the distribution of consultant vacancies, with some centres being relatively well staffed and others having few (or no) paediatric pathologists.

Some trusts have managed to maintain paediatric surgical pathology services with support from general histopathologists with interest or previous experience in paediatric pathology. However, this has not been possible for perinatal pathology, a very specialist area dedicated to the study of the fetus, neonate and placenta, nor for paediatric coronial (or dual-doctor forensic) post-mortems.

This ongoing discussion can obscure the fact that the specialty's breadth of scope, together with the dedication of its workforce, means it is a highly innovative and forward-thinking specialty. Indeed, some of the challenges it faces have fuelled this innovation.

Training

Challenges

Currently all of the paediatric and perinatal pathology specialty residents are employed in England and Scotland, with no training posts occupied in Northern Ireland or Wales. As with the consultant workforce, there is geographic variation in the training experience, with some registrars alone in their deanery. Due to consultant staffing issues, in some deaneries there is only a single consultant trainer, with some centres only able to offer either the perinatal or the paediatric training curriculum rather than both. This requires training to be delivered across deaneries.

Recruiting residents into the subspecialty has proved challenging for several years. The reasons for this are multifactorial. One issue is that the loss of paediatric and perinatal pathology in a number of deaneries means that delivery of integrated cellular pathology training and opportunities for in-person exposure to the specialty are currently inequitable. Specific mitigation is needed to ensure that this lack of early exposure to the subspecialty does not affect recruitment.

Improving recruitment

Several initiatives have been launched to improve recruitment and ensure equity of training experience in the face of the complexities described above.

An innovative National Training Programme Director post has been established to support the organisation and delivery of training, with the National Training Programme Director working to support training from recruitment through to completion of training (CCT). Alongside this, work is underway by the College subspecialty exam committee on examination structure development. In addition, a national virtual teaching programme has been organised via the British and Irish Paediatric Pathology Association (BRIPPA) using the Pathology Portal. In England, an incentive payment has also been trialled to raise the recruitment profile of the subspecialty.

Finally, as discussed in a 2023 Bulletin article,[2] there has been discussion around the possibility of developing a programme to train biomedical scientists in placenta dissection and reporting.

Digital pathology

Paediatric pathology is benefitting from digital pathology innovation, as part of the National Pathology Imaging Co-operative (NPIC). NPIC is based in Leeds Teaching Hospitals NHS Trust. It is a unique collaboration between NHS, academia and industry, deploying digital pathology across

hospitals in England. It also plans to develop artificial intelligence (AI) tools to help diagnose cancer and other diseases.

As part of this, in line with the NHS Long Term Plan, a national paediatric tumour network is being rolled out to support this specialist service. It aims to enable easy sharing of digital images between paediatric pathology centres to allow faster diagnosis and treatment decisions. It will also help reduce health inequalities in areas with less access to pathology reporting expertise and lead to future educational opportunities.

In July 2024 Great Ormond Street Hospital for Children NHS Foundation Trust (GOSH) went live with the National Pathology Imaging Co-operative (NPIC) digital pathology system,[3] the first paediatric hospital to begin using it outside of West Yorkshire. The network will be expanding to other children's hospitals over the coming months, strengthening the ability of consultants to seek second opinions and ultimately provide a faster diagnosis for children all over the country.

Molecular pathology

Paediatric pathology has always been a very active adopter of molecular pathology – neuroblastoma was one of the earliest solid tumours to have treatment pathways determined by molecular profiling. Paediatric patients were among the first to benefit from the opportunity for whole genome sequencing (WGS) and the team at the East Genomic Laboratory Hub (GLH) and Paediatric Pathology service in Cambridge were the earliest adopters of this technology as standard of care for solid tumours. Work published by the paediatric solid tumour team in Cambridge and the haematological malignancy service at GOSH have provided an international evidence base for the positive impact of this.[4]

In addition to the use of molecular pathology in tumours, genomics is of ever-increasing importance in post-mortem work. The National Genomic Test Directory[5,6] allows for the use of whole genome sequencing in the sudden death of a child under 18 years old, if the cause of death remains unexplained after the standard sudden infant death syndrome/sudden unexplained death in childhood protocol (including post mortem) has been completed. This requires specialist multidisciplinary team (MDT) discussion of those patients that may be suitable for WGS (including the pathologist, designated doctor for child deaths, and clinical geneticist as appropriate). The appropriate consent needs to be obtained from the family of the deceased.

In fetal post mortems (including stillbirths), genomic techniques, such as single nucleotide polymorphism array, are frequently used when appropriate. Referrals for testing are triaged by the genomic laboratory; testing should be targeted at those where a genetic or genomic diagnosis will guide management for the proband or family.

Genomic techniques are frequently used in fetal post mortems.

Mutual aid

In both surgical and perinatal work, the workforce challenges have led to 'mutual aid' arrangements in which centres with more capacity take cases to help those centres with less capacity.

As an example, in Leeds we have been performing fetal post mortems (including stillbirths) from Bristol, Leicester and Birmingham, with these arrangements facilitated by NHS England. When capacity has allowed, we have also accepted coronial post-mortems and forensic post mortems from all over England. One of our team is an internationally renowned liver pathologist who carries out primary reporting of liver biopsies and tumours from several other centres. They also undertake central review of hepatoblastoma cases for the Paediatric Hepatic International Tumour Trial (PHITT).

While this additional work places a considerable strain on those centres which accept work from outside their region, it allows the continuation of vital service provision for children and their families.

Post-mortem imaging

In paediatric pathology, there are 3 main types of post mortem; perinatal (including fetuses, stillbirths and terminations of pregnancy), paediatric (including coronial) and forensic. These are performed by specialist perinatal and paediatric pathologists, with forensic post-mortems usually performed in conjunction with a Home Office pathologist.

Post mortems aim to determine the cause of death (or fetal loss), audit any antenatal/antemortem findings, consider recurrence risk and provide any relevant genetic information. This helps grieving families, enhances knowledge and aids epidemiology.

For many years it has been standard practice to perform an X-ray (radiograph) before perinatal (and some paediatric) post-mortems, but, more recently, there has been increasing interest in other radiology imaging techniques to examine the internal organs, both as an adjunct to 'traditional' post-mortems, and also as a form of 'digital' post-mortem.[7–10] These modalities include ultrasound, computed tomography (CT) post mortem, magnetic resonance imaging (MRI) and micro-CT. There is also ongoing research into high-field MRI. The images are reported by a radiologist with special expertise in this field, with some specialist centres now offering a range of post-mortem imaging examinations.

In some cases, laparoscopy (keyhole surgery) is used to biopsy organs for microscopic examination – so-called 'minimally invasive autopsy'. Investigations such as skin biopsy for cytogenetics are also sometimes performed.

Evaluating digital post mortems

Digital post-mortems are not complete in themselves. As in traditional post-mortems, the imaging needs full integration with the clinical history, external examination, placental examination and other investigation results to produce the final report.

Proponents acknowledge that imaging does not replace all of the detailed analysis available following traditional autopsy, but it does provide valuable information for families and can be particularly useful for certain aspects of examination e.g. brain malformations, trauma. There is some evidence to suggest that digital post-mortems may be more acceptable to some parents.

However, digital post-mortems have disadvantages. They are less studied in infants and older children and are limited in their ability to pick up infections, cardiothoracic pathology and the timing of hypoxia. The timing of fetal demise, which can be very important to families and clinicians, is difficult without organ histology. Post-mortem imaging is also currently limited by the availability of scanners and suitably trained radiologists.

Digital post-mortem imaging can be a valuable adjunct to providing accurate diagnosis in fetal, perinatal and paediatric post-mortems. The use of digital post-mortem techniques needs to be tailored to the clinical scenario and availability of resources/expertise. It is well established in some scenarios and is an active research area. In an ideal world, an appropriate imaging modality would be performed whenever it could add value to a post-mortem.

The future

These examples show that, despite workforce challenges, paediatric and perinatal pathology remains an innovative and forward-thinking specialty staffed by committed pathologists, who embrace an open-minded, collaborative and evidence-based approach to their work, to optimise care for children and their families.

References available on our website.

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

The frontline of paediatric brain tumour diagnostics: Advances, challenges and opportunities

Matt Clarke and Tom Jacques of Great Ormond Street report on paediatric brain tumours.

Published: 15 January 2025 **Author:** Matthew Clarke and Tom Jacques **Read time:** 15 Mins

Brain tumours in children have a devastating impact through the years of life lost and life-altering disability. Pathology is the principal step in determining their outcomes because it is the major determinant of treatments that define the likelihood of survival and damage to the developing brain.

Paediatric brain tumours differ from adult brain tumours in that they are morphologically and genetically distinct and driven by different gene pathways and mutations. Moreover, their clinical management differs due to the vulnerability of the developing brain.

The field has changed dramatically in recent years, principally due to the routine use of methylation profiling, which has redefined many tumour types, discovered many more and reframed diagnostic approaches for all. This occurs against the challenges of delivering equity of access (where experience is unevenly distributed), in a specialty not recognised in many countries, and using technology that requires capital investment unaffordable in much of the world. Paediatric neuropathology can be seen as a prototype for the challenges and opportunities of specialist pathology.

Clinical impact of childhood tumours

Brain tumours are the most common cause of death in children and young people after infancy. Those who survive risk lifelong impairments. Cancer Research UK data states that 76.6% of children (up to 14 years) with a central nervous system (CNS) tumour survive for 5 years or more

(2012–2016). Among the survivors, 62% have at least 1 impairment, including motor and visual impairments and epilepsy.[1] There are also cumulative risks of cognitive and neurological impairment that children face as they get older.[2]

The reasons for these poor outcomes are complex, but a common theme is the challenges and impacts of treating the developing brain with aggressive therapies, such as adjuvant craniospinal radiotherapy. Long-term treatment-related disability is in the balance with survival when stratifying treatment.

Pathology has a critical role; there are many types and subtypes of paediatric CNS tumours that require different treatment protocols that balance that risk. When determining the type and subtype of a child's brain tumour, the pathologist is walking a tightrope between over-treatment (and, therefore, disability), which, in contrast to many more common tumours, may have an impact for 5, 6, 7 or more decades, and under-treatment (and mortality).

Classification

Since its 2007 edition, the WHO classification has evolved to include new paediatric-specific tumour types and subtypes (Table 1).[3–5] The main drivers of this expansion are the discovery and refinement of tumour types by molecular characterisation, particularly the frequent use of DNA methylation profiling. The speed at which new tumours are discovered has proven a major challenge to clinical practice and has led to the establishment of the c-IMPACT-NOW Consortium, which publishes interim guidance between editions of the WHO.

Table 1: The number of paediatric-type brain tumour entities occurring in the different iterations of the WHO Classification of CNS tumours.

WHO CNS classification	Number of paediatric brain tumour entities
2007	23
2016	35
2021	43

We are experiencing a change in our diagnostic approach, driven by a shift towards molecular characterisation, with many of the tumours featured in the latest iteration of the WHO classification defined by their molecular features.

This has also led the community to reflect on what a diagnosis is – for example, which test defines the 'ground truth' in the diagnostic pathway. Change can be challenging to implement; the neuro-oncology community frequently encounters unique challenges in how to treat and prognosticate these tumours. Also, the accessibility of the required diagnostic tests is vital; all paediatric brain tumours should undergo the necessary molecular workup. However, inequalities in access can mean the standard can be difficult to meet.

Table 2: The different paediatric CNS tumour entities, as per the 5th edition of the WHO classification of paediatric tumours.[6]

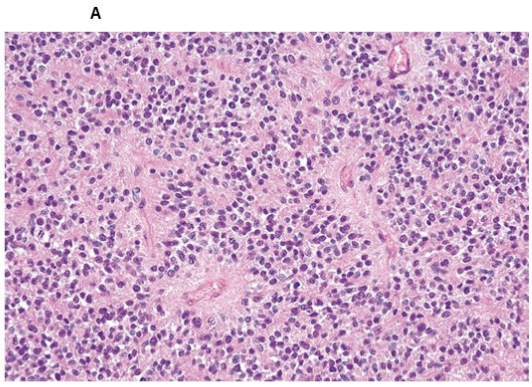
Gliomas, glioneuronal tumours and neuronal tumours	**Paediatric-type diffuse low-grade gliomas** Diffuse astrocytoma, MYB- or MYBL1-altered Angiocentric glioma Polymorphous low-grade neuroepithelial tumour of the young Diffuse low-grade glioma, MAPK pathway-altered **Paediatric-type diffuse high-grade gliomas** Diffuse midline glioma, H3 K27-altered Diffuse hemispheric glioma, H3 G34-mutant Diffuse paediatric-type high-grade glioma, H3-wildtype and IDH-wildtype Infant-type hemispheric glioma **Circumscribed astrocytic gliomas** Pilocytic astrocytoma High-grade astrocytoma with piloid features Pleomorphic xanthoastrocytoma Subependymal giant cell astrocytoma Astroblastoma, MN1-altered **Glioneuronal and neuronal tumours** Ganglioglioma Desmoplastic infantile ganglioglioma/desmoplastic infantile astrocytoma Dysembryoplastic neuroepithelial tumour Diffuse glioneuronal tumour with oligodendroglioma-like features and nuclear clusters Diffuse leptomeningeal

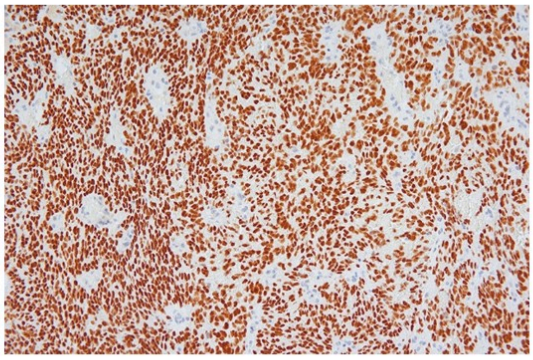
	glioneuronal tumour Multinodular and vacuolating neuronal tumour
Ependymal tumours	Supratentorial ependymoma Supratentorial ependymoma, ZFTA fusion-positive Supratentorial ependymoma, YAP1 fusion-positive Posterior fossa ependymoma Posterior fossa group A (PFA) ependymoma Posterior fossa group B (PFB) ependymoma Spinal ependymoma Spinal ependymoma, MYCN-amplified Myxopapillary ependymoma
Choroid plexus tumours	Choroid plexus papilloma Atypical choroid plexus papilloma Choroid plexus carcinoma
CNS embryonal tumours	Medulloblastomas, molecularly defined Medulloblastoma, WNT-activated Medulloblastoma, SHH-activated and TP53-wildtype Medulloblastoma, SHH-activated and TP53-mutant Medulloblastoma, non-WNT/non-SHH
Other CNS embryonal tumours	Atypical teratoid/rhabdoid tumour Cribriform neuroepithelial tumour Embryonal tumour with multilayered rosettes CNS neuroblastoma, FOXR2-activated CNS tumour with BCOR internal tandem duplication CNS embryonal tumour NEC/NOS
Pineal tumours	Pineoblastoma
Melanocytic CNS tumours	Diffuse meningeal melanocytic neoplasms: melanocytosis and melanomatosis

Tumours of the sellar region	Pituitary endocrine tumours Pituitary adenoma/pituitary neuroendocrine tumour Pituitary blastoma
Craniopharyngiomas	Adamantinomatous craniopharyngioma

Integrated diagnosis

Neuropathology was one of the first specialties to adopt the integrated diagnostic approach (as part of the ISN-Haarlem Guidelines) when reporting tumour cases.[7] Each case is assigned a histological diagnosis, a CNS WHO grade, and a summary of the molecular characteristics, which will be brought together as a final integrated diagnosis (Figure 1).





C

Diagnostic criteria for CNS tumour with *BCOR* internal tandem duplication
Essential:
A malignant primary CNS tumour with a predominantly solid growth pattern, uniform oval or spindle-shaped cells with round to oval nuclei, and a dense capillary network
AND
An internal tandem duplication in exon 15 of *BCOR*
AND (for unresolved lesions)
A DNA methylation profile aligned with CNS tumour with *BCOR* internal tandem duplication

D **INTEGRATED DIAGNOSIS**: CNS tumour with BCOR internal tandem duplication
Histological diagnosis: high-grade embryonal tumour
CNS WHO GRADE: not applicable
Molecular data:
-immunohistochemistry: BCOR: positive; P53: negative; INI1: retained
-methylation class: CNS tumour with BCOR internal tandem duplication
-copy number changes: internal tandem duplication in exon 15 of *BCOR*
-panel sequencing: internal tandem duplication in exon 15 of *BCOR*
-fusion panel: no fusions detected
-MGMT promoter: unmethylated (methylation array)

Figure 1. CNS tumour with BCOR internal tandem duplication, a newly defined entity within the WHO classification, frequently seen in children. A. A representative histology image of the tumour. B. Immunohistochemistry demonstrating strong labelling for BCOR. C. The 'diagnostic criteria' for this tumour as shown in the WHO classification. Each tumour is provided with a set of essential and desirable features (including molecular) which help to guide diagnosis (5). D. A fictionalised example of the integrated diagnosis for this tumour type, the components of which are provided for each paediatric CNS tumour.

Equity of access

In well-resourced countries, access to such diagnostic tests should be straightforward, e.g. through the Genomic Medicine Service; as an example, for all paediatric brain tumours in England, DNA methylation profiling, DNA NGS sequencing and RNA fusion panel sequencing are funded as standard-of-care. This is not the case internationally, where significant inequalities in access exist. This inequality cascades down treatment pathways. Every child diagnosed with a brain tumour should be able to access such tests irrespective of location. The Asian Oceanian Society of Neuropathology guidelines for Adapting Diagnostic Approaches for Practical Taxonomy in Resource-Restrained Regions (AOSNP-ADAPTR) are designed to help support diagnostics in lower-middle-income countries.[8]

In well-resourced countries, the issue becomes one of specialisation. Who should report brain tumours? In the UK, most neuropathologists can demonstrate expertise in brain tumour diagnosis, but what is the role of specialist centres and how can they be defined? With only 400–500 cases a year across 43 tumour types and 17 centres, each with 2 or 3 neuropathologists, most neuropathologists will see few, let alone the rarer types and subtypes. The optimal balance of specialist pathology across hospitals, regions and nationally has yet to be resolved.

Turnaround times

'How long will we have to wait?' is a frequent question in multidisciplinary team meetings. For many brain tumours, the guidelines recommend that adjuvant therapy starts within 28 days of surgery; there is outcome data to support this, in some cases. As turnaround times for molecular tests are significant, often measured in weeks, it becomes challenging to provide an integrated diagnosis in sufficient time for the oncologist to plan and initiate treatment. Furthermore, some patients will require germline testing within this timescale, depending on the pathological classification.

When a diagnosis hinges on the identification of a particular molecular feature, the paediatric neuro-oncology teams and families are in limbo while waiting for molecular testing, unsure how best to proceed without the final diagnosis, exacerbated by the fact that it is not uncommon for molecular tests to change the diagnosis/grade of a tumour. There is no disagreement that molecular tests remain crucial, but refinement of techniques to improve turnaround times is a priority.

Nanopore and rapid genomic diagnosis

Nanopore sequencing may mitigate many of the current challenges around turnaround times. Results can be determined in real-time, with the flexibility to add genes onto a panel while a case is sequenced.[9] Currently, intraoperative smear assessment is frequently used by paediatric neurosurgeons seeking an indication of the tumour type, guiding subsequent resection strategies; we are now on the verge of being able to provide a molecular test intraoperatively in parallel with the intraoperative smear assessment, which will be hugely valuable for neuro-oncology teams.

Training

Training existing consultants and the next generation in the latest advances has been important, with an increased appreciation of the need to update training and keep pace. Morphological skills remain vital to training; recognising the tumour type will help guide targeted molecular investigations. However, it is easy to adopt a perception that morphology is less important, as molecular results will provide the diagnosis, leading to less time spent considering the tumour phenotype. Morphology is crucial when deciding and interpreting the molecular results – molecular outputs may not always be correct!

Training the next generation to integrate such results is a new avenue of the training pathway; not all centres have access to molecular testing and, therefore, cases are sent away for analysis, meaning accessing this training can be difficult. For those at the forefront of the integrated diagnosis, gathering feedback about subsequent treatment decisions and outcomes (e.g. did the tumour behave/respond as predicted?) is increasingly difficult. Feedback is an important principle for all work undertaken. It is hoped that with the often-discussed government commitments to improving and integrating national healthcare IT services, this will be better orchestrated. Regular feedback from molecular pathology improves morphological diagnosis and training.

Late-stage disease

Paediatric brain tumours remain a significant clinical challenge to treat; relapses are common, particularly with higher-grade tumours, and are often untreatable. Most studies have focused on disease at presentation, meaning there is a relative dearth of data about the biology of late-stage and relapsed disease. However, the importance of continual molecular monitoring is now recognised; in the UK, the Stratified Medicine for Paediatrics (StratMedPaeds) trial recruits children, adolescents and young adults with relapsed or refractory disease for multi-modality molecular testing to identify actionable alterations.

There is also an increasing interest among patient and parent groups in exploring brain donation if their child passes away. Several studies have found that families appreciate the opportunity to discuss and consent to an autopsy. Clinicians often avoid discussion of this topic; however, this misses the chance to offer something valued by grieving families. Furthermore, we are missing the opportunity to better understand the molecular characteristics of a tumour in terms of its evolutionary and treatment timeline. This would allow us to appreciate the impact of particular treatments on tumour biology and potentially explore the threat of resistance mechanisms. This can bring some consolation to devastated families after such an awful outcome.[10,11]

We also need to be mindful of the effect of treatments given for other childhood cancers. Several subtypes of high-grade glioma can occur in the adolescent and young adult years, on a background of treatments for childhood cancers, such as acute lymphoblastic leukaemia or medulloblastomas. How these patients are monitored post-treatment is an important consideration, but also highlights the growing need for safer treatments that do not leave a patient with significant disability, or with the threat of developing a second aggressive tumour.

Academic neuropathology

Paediatric neuropathology is an academic specialty; it is very clear from the significant changes seen across the breadth of the field that research is an integral, not optional aspect of the work. Members of the workforce are either actively engaged in research themselves or provide significant support to other research teams across the UK and internationally via established research networks. Progress is not achievable without a collaborative ethos. Paediatric neuropathology helps to highlight what can be achieved when we work together.

Many neuropathologists are at the forefront of the research advances seen in nanopore sequencing, spatial transcriptomics and tumour classification, among others, and there is a wealth of opportunities to shape an academic career for trainees. However, paediatric neuropathology is not immune to the challenges experienced more generally in academia, including increased financial and time pressures. Therefore, it must be supported as a priority and cornerstone of workforce planning. Neuropathologists act as the bridge between research and clinical teams. It is essential that academia is encouraged as part of a career in this specialty.

The future?

Neuropathology is one of the most fast-paced and cutting-edge specialties in pathology and is an attractive area in which to work. There will be many advances in the coming years, which will change practice in paediatric brain tumour diagnostics and shape change in other areas of

cellular pathology. Advances in artificial intelligence on the back of a strong foundation in digital pathology are likely to be a key feature. Some in the community fear the impact of this on job security.

However, as with the implementation of molecular advances, neuropathologists will be working with bioinformaticians and clinical, computer and research scientists to guide, advise and even lead the development and implementation of tools that we need on the frontlines of paediatric brain tumour diagnostics, which will also be synergistic with adult brain tumour diagnostic workflows. Consequently, the continual drive to strengthen the link between paediatric brain tumour research and neuropathologists will be a key priority, supporting the transition of data both ways to help the advancement of our vital subspecialty and to lower the significant mortality and morbidity that this disease still has for children.

References available on our website.

Meet the authors

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NIHR CLINICAL LECTURER IN DIAGNOSTIC NEUROPATHOLOGY (ST5) AT INSTITUTE OF CANCER RESEARCH / UNIVERSITY COLLEGE LONDON HOSPITALS

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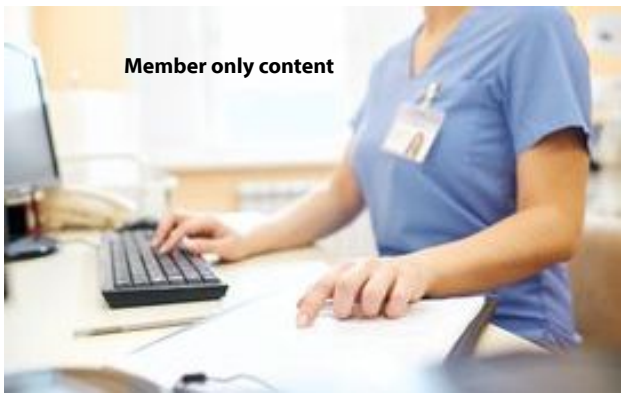

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Wales Pathology Symposium and coastal walk

Dr Anu Gunavardhan, Chair of the Wales Regional Council, updates us on recent College activities in Wales.

Published: 15 January 2025 **Author:** Anu Gunavardhan **Read time:** 4 Mins

A recent pathology symposium was held in Cardiff to explore rare diseases, with presentations on digital pathology, prenatal pathology and haematology. College members also took to the Wales Coastal Path Walk with local politicians to raise awareness of rare diseases.

Strategic improvements and innovation in Welsh healthcare

The Wales Pathology Symposium took place on 25 October 2024 at the Hilton Hotel in Cardiff, with the theme of 'Rare diseases'. Alan Deacon, the National Pathology Lead for NHS Wales Executive, opened the event with an insightful overview of NHS Wales Executive's structure. He emphasised its role as a mediator between the Welsh government and NHS Wales, contributing to strategic improvements and the implementation of innovative technologies in healthcare. Notably, he pointed out that 95% of all clinical pathways rely on pathology, which underscores its central role.

Deacon addressed key challenges in the field, including data gaps, limited decision-maker investment, unique geographic constraints and the 'fragile' status of some services. These challenges paved the way for the establishment of the National Pathology Programme in 2015, funded directly by the Welsh government, to support the development of high-quality, effective and sustainable pathology services in collaboration with health boards and trusts.

Key initiatives include advancing a national business case for digital cellular pathology (with procurement anticipated in 2025), securing funding for image storage solutions and expanding AI-driven reporting for breast, prostate, upper gastrointestinal and pan-cancer cases, as well as

digital haematology and parasitology. Investments for automated microtomy are also on the horizon. In summary, Deacon noted that pathology would play a vital role in restoring and strengthening post-COVID-19 services, with the programme focused on establishing sustainable, efficient and timely pathology services for the future.

Pathologists recently travelled to Cardiff for a symposium on rare diseases, with a coastal path walk the following day to raise awareness.

Developments in digital pathology

The second speaker, Dr Muhammad Aslam, National Lead for Digital Pathology and AI, began by describing the early telepathology efforts that enabled remote frozen section reporting and discussed a milestone in the 2000s with Aperio scanners.

Wales led the UK with its first all-Wales digital pathology validation, scanning and reporting 3,001 cases across 6 health boards by 22 pathologists. New scanners are now available in each health board, with 20% of Betsi Cadwaladr Health Board cases now digitally scanned. The Welsh Lymphoma and Soft Tissue Sarcoma Services have adopted digital reporting, resulting in faster turnaround times.

Dr Aslam highlighted the present use of AI to enhance cancer detection, improve reporting efficiency and empower pathologists as digital transformation leaders. He outlined upcoming AI applications, including automated mitosis counting, PD-L1 and MSI analysis, HER2 assessments, automatic hormone receptor testing in breast cancer and AI-based smart reporting.

Prenatal pathology

Sophie Bannister, trainee clinical scientist, presented on the evaluation of the non-invasive prenatal testing (NIPT) service in Wales. Her study highlighted the service's focus on detecting fetal anomalies identified via ultrasound screening for conditions such as Down, Edwards, and Patau syndromes. She detailed how NIPT has provided a safer, non-invasive testing option for ongoing pregnancies with anomalies, with significant utility in high-risk pregnancies. Patient management outcomes and the broader benefits of this service were key points of discussion.

Next, Fiona Kerr, trainee clinical scientist, introduced the Pregnancy-Related Rapid Sequencing (PRRS) Service in NHS Wales, a new approach using whole exome sequencing to investigate major fetal structural abnormalities. Launched by the All Wales Medical Genomics Service in March 2023, the service focuses on non-viable pregnancies, aiding clinicians in managing cases and assessing recurrence risks. Early data shows a 50% diagnostic yield, underscoring the value of PRRS in guiding future pregnancy decisions.

Update from the College President

Dr Bernie Croal, College President, followed with an update on the strategic outlook for the next 5 years. The College continues to position itself as a leader in pathology excellence, upholding high standards in education and training, fostering member pride and engagement, and advocating for pathology at governmental levels. He encouraged members to get involved and help drive the College's mission forward.

Haematology services

Dr Tariq El-Shanawany, consultant clinical immunologist, then discussed the diagnostic importance of calculated globulin levels. High levels may indicate haematological malignancies or the presence of paraproteins, while low levels could suggest other health issues. He highlighted the integration of globulin analysis with the All-Wales Laboratory Information Management System, which could streamline diagnostics and enhance service quality.

Dr Danja Schulenburg-Brand, a consultant in metabolic medicine, gave an overview of porphyria services in Wales, emphasising biochemistry's role in diagnosing symptomatic patients. She provided insights into the different types and phenotypes of porphyria, as well as diagnostic challenges, underscoring the importance of specialised services for affected individuals.

Poster presentations

The symposium concluded with 3 award-winning poster presentations. The first-place award went to Dr Mark Ponsford and his team for their audit of referrals following perioperative anaphylaxis, stressing the need for a sustainable perioperative allergy network in Wales to address service gaps.

Ms Felicity May presented the second-place poster on introducing non-invasive prenatal testing for fetal RHD genotyping in Wales. This collaboration between the Welsh Blood Service and Antenatal Screening Wales allows for targeted antenatal prophylaxis, projected to benefit approximately 1,500 women annually by reducing the need for routine antenatal anti-D prophylaxis.

The third presentation was by Dr Heath, who discussed a thyroid cytology audit based on the North Wales experience. Cytology-to-histology correlation and College guideline compliance were audited and the North Wales 1-stop neck lump clinic was highlighted. This is a service that provides a streamlined pathway with same-day appointments, radiology imaging and fine needle aspiration with cytology reports, enhancing patient experience and reducing turnaround times.

Overall, the symposium was well received by attendees. The day provided valuable insights into the critical role of pathology in driving service improvement, running rare disease diagnostic services, spurring technological innovation and providing patient care in Wales.

Raising awareness with a coastal walk

The Wales Coastal Path Walk took place on 26 October to raise awareness about rare diseases. Organised in collaboration with groups such as Nerve Tumours UK, Ethnic Minority Women in Welsh Healthcare, Medics For Rare Diseases and SWAN Clinic UK, the event began on a beautiful, warm autumn morning at Penarth Pier Pavilion. Participants walked along the coastal path through Cardiff Harbour, ending at the Senedd. We were joined by Jenny Rathbone MS and Gwenda Roberts, the Mayor of Penarth.

Engaging with the public along the way, we shared pathology flyers and enjoyed in-depth conversations with both politicians and other walkers. The event concluded with an invitation to the Senedd for refreshments and further discussions – an inspiring and successful day overall.

Meet the author

DR ANU GUNAVARDHAN
CHAIR, WALES REGIONAL COUNCIL

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Introducing our new Sustainability Lead for Pathology Practice, Dr Shireen Kassam

Climate change is a major risk to global health. Pathology as a profession must work towards a sustainable future.

Published: 15 January 2025 **Author:** Shireen Kassam **Read time:** 4 Mins

In the new College role of Sustainability Lead for Pathology Practice, Dr Shireen Kassam outlines her aims for raising the profile of sustainability in pathology practice.

I am excited and honoured to have been appointed to the College role of Sustainability Lead for Pathology Practice, with the role of advancing sustainability initiatives both within the College and across the wider pathology community. For College operations, the Trustee Board has agreed a 42% reduction in absolute carbon emissions by 2032 from our initial baseline as an interim target and a net zero target date of 2040. This being a new role brings both challenges and advantages. It does, however, allow me to shape the role in a way that meets the expectation of our members.

Who am I?

I am a consultant haematologist at King's College Hospital, London with a passion for preventative and sustainable healthcare. My role includes haemato-pathology, clinical work and being a medical examiner, so I can relate to many aspects of our profession. To date, I have been supporting sustainability initiatives in a personal capacity by providing education and advocacy on preventative healthcare using a plant-based, lifestyle medicine approach, as further explored in my April 2024 Bulletin article, Plant-based diets – an underutilised way to tackle our health and climate crises. I now want to support my profession to play its part in creating a liveable future for all.

The College is embedding sustainability in everything we do.

Why is sustainability in healthcare important?

"Without decisive and urgent action, the climate crisis will increasingly undermine human health and disrupt healthcare delivery. There are both moral and practical reasons for health professionals to be at the forefront of climate action."[1]

We are in the midst of a global, inter-related crisis of health, climate breakdown and biodiversity loss. According to a Health Care Without Harm report, healthcare contributes around 4–5% of all greenhouse gas emissions that are warming the planet. This may sound small, but it makes the sector (if it were a country) the fifth largest climate polluter on the planet.

It is human activity that is warming the planet. We have now breached 6 of the 9 planetary boundaries that maintain our current way of life, as identified by the Stockholm Resilience Centre. The 2024 Global Report of the Lancet Countdown states that we are "facing record-breaking threats from delayed action" and, in the words of António Guterres, United Nations Secretary General, speaking to world leaders at COP29, "Climate action is not optional, it's an imperative... indispensable to a liveable world. The clock is ticking. I count on you." We will all recognise the devastating consequences of climate inaction both at home and abroad. Business as usual is not an option. We all have to take action as individuals and as a profession.

What is sustainable healthcare?

There are 4 principles of sustainable healthcare, all of which are relevant to pathology practice. They are:

1. prevention

2. patient empowerment

3. lean pathways

4. low-carbon alternatives.

These need to be embedded into all we do at the College, be it within guidelines, in our investments and operations, or within research and innovation.

What will be the responsibilities of the Sustainability Lead?

The responsibilities of the Sustainability Lead include raising awareness among members, trainees and pathology professionals about the importance of sustainability in healthcare. This may involve organising educational programmes, workshops and webinars on sustainable practices in pathology, providing guidance to support the pathology community in adopting environmentally friendly procedures and fostering collaboration with sustainability leads of Pathology Alliance members, external organisations and industry partners to advance sustainability goals. The Sustainability Lead will represent the College in relevant sustainability forums, conferences and working groups to share knowledge and best practice, and provide clinical input for, and liaise with, the College's policy team on sustainability issues. I will report to College Council on sustainability issues.

We also need to take action as a profession to ensure pathology practice is future-proof. There are already excellent initiatives taking place, such as green audit schemes in diagnostic laboratories, which we can all learn from and incorporate into our working lives.

What's next?

My first task is to bring together like-minded individuals who share my passion for creating a liveable future and working towards a sustainable healthcare service. I want to understand and showcase the great work you are already doing. I also aim to raise the profile and urgency of sustainability within our profession. Please get in touch via shireen.kassam@nhs.net.

Reference available on our website.

Meet the author

DR SHIREEN KASSAM

CONSULTANT HAEMATOLOGIST AND FOUNDER OF PLANT-BASED HEALTH PROFESSIONALS UK

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Helping our members optimise their clinical consultation activity in a time of workload pressures and workforce shortages

Dr Natasha Ratnaraja discusses efforts to manage infection workloads.

Published: 15 January 2025 **Author:** Dr Natasha Ratnaraja **Read time:** 4 Mins

Against a background of workforce shortages, the College's Joint Medical Microbiology and Medical Virology Specialty Advisory Committee is committed to helping our members who work in infection to manage their ever-increasing workload.

As part of the College's ongoing collaboration with the British Infection Association (BIA), we have published *Tools for optimising clinical consultation activity in infection services in the United Kingdom* in the online BIA journal *Clinical Infection in Practice* (*CLIP*) in September 2024.[1]

Managing workload and workforce

An email was sent to members asking for their participation in developing these tools and 3 working groups were formed, each with a different objective. First, to define the common types of clinical activity in the infection specialties. Second, to provide referrers with the information they need to have available and provide when seeking advice from an infection specialist. Third, to provide examples of useful tools to document clinical activity.

The themes of the working groups were selected following the publication of the 2021 BIA/RCPath workforce survey,[2] which highlighted significant workforce shortages within the UK, as well as increasing demands upon infection services. It reported consultant vacancies of 20.3% in microbiology, 14.6% in virology and 9.3% in infectious diseases.

It is not within the power of the College to increase training numbers or consultant posts in infection specialties; however, we have previously provided advice on the number of programmed activities (PAs) required for key duties of infection specialists in secondary care.[3] In our latest document, the aim was to suggest approaches to help ease the burden of consultation activity, especially the provision of remote advice, which, along with clinical authorisation, forms a significant part of the workload.

A tool for streamlining consultations

The workforce survey highlighted the lack of agreed definition of a clinical consultation type.[2] It is important to accurately capture our clinical activity, so that this can then be used by anyone in the infection service to document their own activity: useful for personal and departmental job planning, and infection service configuration and commissioning. Infection specialty trainees may use these definitions to document evidence of different clinical activity types for their higher specialist training.

The definitions of clinical consultation types in the latest document were obtained via consensus of the working group, with further input from the College's Specialty Advisory Committee and the BIA Council and Clinical Services Committee.[1]

The provision of a standardised clinical dataset for the minimum information required for clinical consultations should reduce the time spent gleaning the relevant information from users, mainly resident doctors on the wards. Thus, not only should it streamline the consultation and reduce the time spent undertaking a consultation, but it should also prove to be a useful training tool for clinical colleagues in other specialties.

Finally, the document describes examples of approaches and guidance tools that readers may wish to consider. The minimum information datasets could be incorporated into these tools as a template for users to complete as part of the request.

We hope our members find this a useful document for training, capturing clinical activity and streamlining clinical consultation workloads.

References available on our website.

Meet the author

DR NATASHA RATNARAJA

CHAIR, JOINT MEDICAL MICROBIOLOGY AND MEDICAL VIROLOGY SAC

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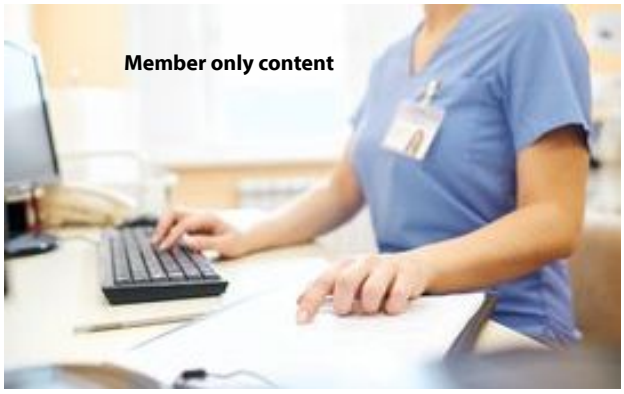

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How can pathologists maintain services after a cyber-attack?

Published: 15 January 2025 **Author:** Dr Karen Mitchell **Read time:** 5 Mins

The Synnovis cyber-attack impacted laboratory information management systems, leaving pathologists unable to provide key services. The College's Pathology Informatics Committee recently met members to develop an action plan for future attacks.

The Pathology Informatics Committee (PIC) met some College members from the Southeast London Network, who shared their experiences of working in pathology following the cyber-attack on their analyser interfaces (or middleware, if you prefer) with their laboratory information management system (LIMS) that occurred in June 2024.

Their department experienced a prolonged period without an effective analyser/LIMS interface and its connections to internal and external systems, while providing a pathology service to 3 million patients and supporting highly specialised clinical services and a primary care network. One of the key services affected was blood transfusion. The limited capacity for cross-matching had a significant effect on clinical services, including cancelled transplant surgeries and the necessity to exclusively use O-negative blood products, which contributed to a national amber alert for blood supply that was highlighted in the media.

While this was an IT problem, the solutions were not local and immediate, which highlighted the central role that LIMS and middleware have in delivering a pathology service.

How to prepare for cyber-attacks

Our discussion identified the top 5 topics for colleagues to consider as part of their preparation in case a similar incident is repeated elsewhere. These evolved from the immediate to longer-term responses and included:

- diverting primary care from the affected laboratory (stopping and/or diverting workflow)
- controlling clinical demand from secondary care
- identifying mutual aid pathways (general and specific services) from other organisations
- recognising the limited capacity, differing issues and solutions within each pathology department
- ensuring clinical pathology staff were integrated into the decision-making process.

These are broad themes that can be reviewed in context of the general or specialist work undertaken in your own hospital and/or network.

Business continuity

From an informatics perspective, a number of questions were identified to be considered as part of business continuity planning. Members who are currently involved in (or have recently been) gathering data for a replacement LIMS will recognise the amount of detail and data that is part of the functioning of the LIMS. A few questions to consider as part of your continuity plan are listed below.

- Where is your laboratory data backed up and how long would it take to reinstall a copy of your system? Do you have copies of set-up information relating to tests, reference ranges, rules, etc.?
- Where is your middleware and interface software located?
- How is your LIMS set up (e.g. local versus cloud servers) and what connections feed in and out of it?
- Does your order comms have the ability to print paper requests or eye-readable requests on labels?
- Do you have a process to manually generate worklists, perform testing and enter results into the recovering LIMS, with witnesses performing assurance second checking at all manual points?

Within the pathology community, the standardisation of language and test names would provide ease of transfer of requests, reports and interpretation of results. SNOMED CT coding of reported tests is ongoing, but identifying assay-agnostic standardised reporting and interpretation, e.g. positive versus detected, and harmonised reference intervals would benefit clinicians with interpretation in the event that their work is analysed in a different location.

Resilience against future attacks

The PIC identified several themes that could benefit pathology members in their responses to an incident and in developing resilience for the future.

Developing a toolkit for business continuity planning

A pathology-focused toolkit should be developed for business continuity planning and reviewing clinical and laboratory services, IT connections, comms, staffing, etc. This should involve:

- risk matrices by specialty or service
- understanding what the immediate and long-term consequences are
- how to assess the impact of loss of service – in the laboratory, clinical services, patient episodes/care
- the impact on laboratory business – stock, invoices, payments
- the impact on laboratory standards – assessments, external quality assurance metrics, monitored data outputs, dashboards
- the impact on laboratory staff – hours, pay, health and wellbeing, learning
- recording decision-making.

Education and training

Educate all staff groups on manual processes. An understanding of the basic processes that are commonly done electronically (or by programming) can help during downtime but also assists in understanding and interpreting the outputs from artificial intelligence (AI) and machine learning:

- booking in paper requests
- manual cross-matching
- manual aliquots and dilutions.

AI and machine learning

Review and understand the use of AI in pathology, where it works well and the 'grey zone'. Review robustness, security and accessibility to cloud-based AI and machine-learning software.

Promoting pathology

Promote the value and complexity of pathology and pathologists. Use National Pathology Week and other events to educate healthcare colleagues on the varied and essential work undertaken by each of the specialties in pathology.

Infrastructure

Understand the technology and infrastructure that support work in pathology and where IT systems or equipment needs updating and/or replacing.

Data standards

Develop and implement assay-agnostic terminology standards that allow interoperability for both clinical and research applications with an aligned approach. Better data allows for better outcomes and evaluation of interventions.

Meet the author

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Launch of the statutory medical examiner system in England and Wales

Dr Suzy Lishman, College Senior Advisor on Medical Examiners, explains the new death certification reforms.

Published: 15 January 2025 **Author:** Dr Suzy Lishman **Read time:** 5 Mins

A programme of death certification reforms, of which the role of the medical examiner is a major part, came into force on 9 September 2024. The College hosted a reception to mark the occasion, with representatives from government, NHS England and faith communities speaking about the importance of the reforms.

Welcome

The College has campaigned for the introduction of medical examiners for over 15 years and has worked with successive governments and ministers to support implementation of the system. The College has trained over 3,000 medical examiners and officers, ensuring that there are enough trained individuals to deliver the statutory medical examiner service, in which a death cannot be registered without coroner or medical examiner review.

To mark the launch of the statutory medical examiner system in England and Wales, the College hosted a special event. Dr Bernie Croal, President of the College, welcomed guests to the event and thanked everyone involved in the development of the new system.

Dr Suzy Lishman, the College's Senior Advisor on Medical Examiners, paid tribute to everyone who contributed to setting up the medical examiner system, including the civil servants of several government departments, the National Medical Examiner, the College's Medical Examiners Committee, training facilitators and particularly the representatives of patient and faith communities, for their support of medical examiner training.

Welcoming the move of the medical examiner system to a statutory service, from left to right: Mohamed Omer MBE, National Burial Council and Co-Founder Gardens of Peace; Dr Frances Cranfield, Royal College of General Practitioners; Sir Robert Francis KC; Dr Bernie Croal, President of the Royal College of Pathologists; Dr Suzy Lishman CBE, RCPath Senior Advisor on Medical Examiners; Dr Alan Fletcher, National Medical Examiner for England and Wales; and Professor David Katz, Board of Deputies of British Jews.

National Medical Examiner

Dr Alan Fletcher, the National Medical Examiner, highlighted the progress that was made in the non-statutory system and thanked the many stakeholders involved. Dr Fletcher said, “It is fitting that this event is held at the Royal College of Pathologists, as the lead college for medical examiners and medical examiner officers, because their continued excellent support over many years has been instrumental in achieving readiness for the statutory system.

"My special thanks to Dr Suzy Lishman, whose support has been fantastic and I believe we would not be where we are now without her leadership for training and more.

“The golden thread that runs through this system is that bereaved people are at the centre of it. There is a risk this has become a cliché, but for medical examiners and officers, getting it right for bereaved people really is at the centre. The benefits in accurate coroner referral and detection of patient safety concerns are clear.

“We now have over 2,700 senior doctors trained as medical examiners and over 750 people trained as medical examiner officers. We are currently scrutinising over 80% of all eligible deaths and have scrutinised over 1 million deaths in the non-statutory phase.”

Faith communities

Mohamed Omer MBE, representing the National Burial Council and Gardens of Peace Muslim Cemetery, spoke on behalf of the Muslim community. He welcomed the reforms, particularly the care taken by medical examiner offices to meet the needs of faith communities by minimising delays to funerals. Mr Omer has spoken at almost every medical examiner and officer training day, ensuring that everyone working in the service understands the importance of working with local faith communities.

Mr Omer said, "The medical examiner system ensures the bereaved families are at the heart of it. We are grateful that the new system takes into account faith requirements to allow for quick burials. To include faith requirements as part of the training programme for both medical examiners and medical examiner officers demonstrated the commitment by the National Medical Examiner team to be sensitive of bereaved families' needs."

Professor David Katz FRCPath spoke on behalf of the Board of Deputies of British Jews who have also contributed to medical examiner training. He said that "cultural competencies are important, since these issues rank very highly as Jewish religious freedoms required from host societies.

"Jewish principles – investigating how and why death occurs to learn lessons that help to prevent future illness and possibly death, and supporting bereaved families – are shared major objectives between Jews and medical examiners; hence, 9 September 2024 is an important milestone."

Royal College of General Practitioners

Although the College is the lead college for medical examiners, it has worked closely with other medical royal colleges and faculties to develop training and ensure that consideration is given to the impact of the reforms on all doctors. The Royal College of General Practitioners (RCGP) has been particularly supportive over many years, as a key member of the Medical Examiners Committee. Dr Frances Cranfield spoke on behalf of the RCGP.

"RCGP would like to extend its sincere thanks to the RCPath for all it has done to help and influence the production of a whole new medical specialty and whole new statutory process of scrutiny of death. We are aware of the enormous amount of work and commitment over so many years with standard-setting and most particularly with training.

"We have seen some outstanding leadership during that time. We are very grateful for the inclusivity and respect shown and the training and guidance provided to so many GPs who are now themselves medical examiners. We believe that this does have the potential to make a big

difference for the bereaved and that it does have the potential to improve patient safety. Some things are worth believing in and worth working for, so thank you to the RCPath for your part in helping to make this a reality."

Sir Robert Francis

The final speaker was Sir Robert Francis, who chaired the Mid-Staffordshire inquiry and is former President of The Patients Association and former Chair of Healthwatch England. The introduction of medical examiners was one of the recommendations of the Mid-Staffs report and the one that has taken longest to implement. Sir Robert acknowledged all the work that had gone into preparing for the statutory medical examiner system and welcomed the benefits for the bereaved and learning to improve care for future patients.

Meet the author

DR SUZY LISHMAN CBE

SENIOR ADVISOR ON MEDICAL EXAMINERS

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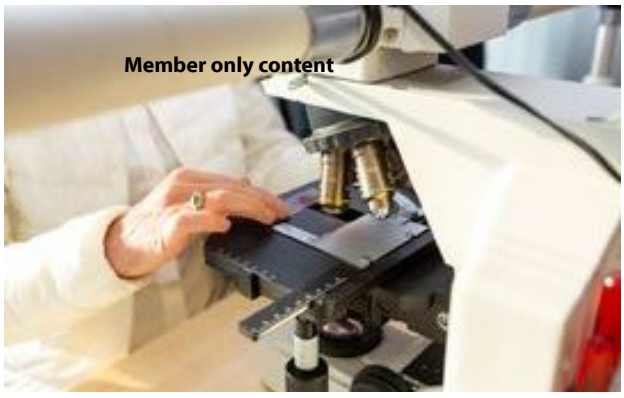
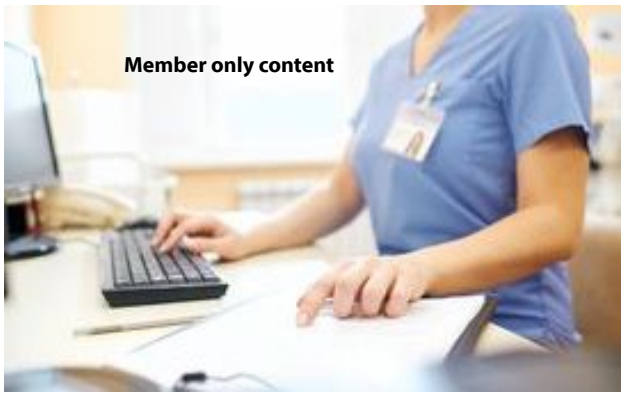


Public perceptions of pathology: 'Behind the Microscope' museum exhibition



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Public perceptions of pathology: 'Behind the Microscope' museum exhibition

What does the public think about pathology?

Published: 15 January 2025 **Author:** Caroline Cartlidge and Debamita Bhattacharjee
Read time: 5 Mins

Caroline Cartlidge and Debamita Bhattacharjee previously reported on the histopathology exhibition at Thackray Museum of Medicine. Now that the exhibition has closed, they report on the impact it had on highlighting pathology as a career to the public.

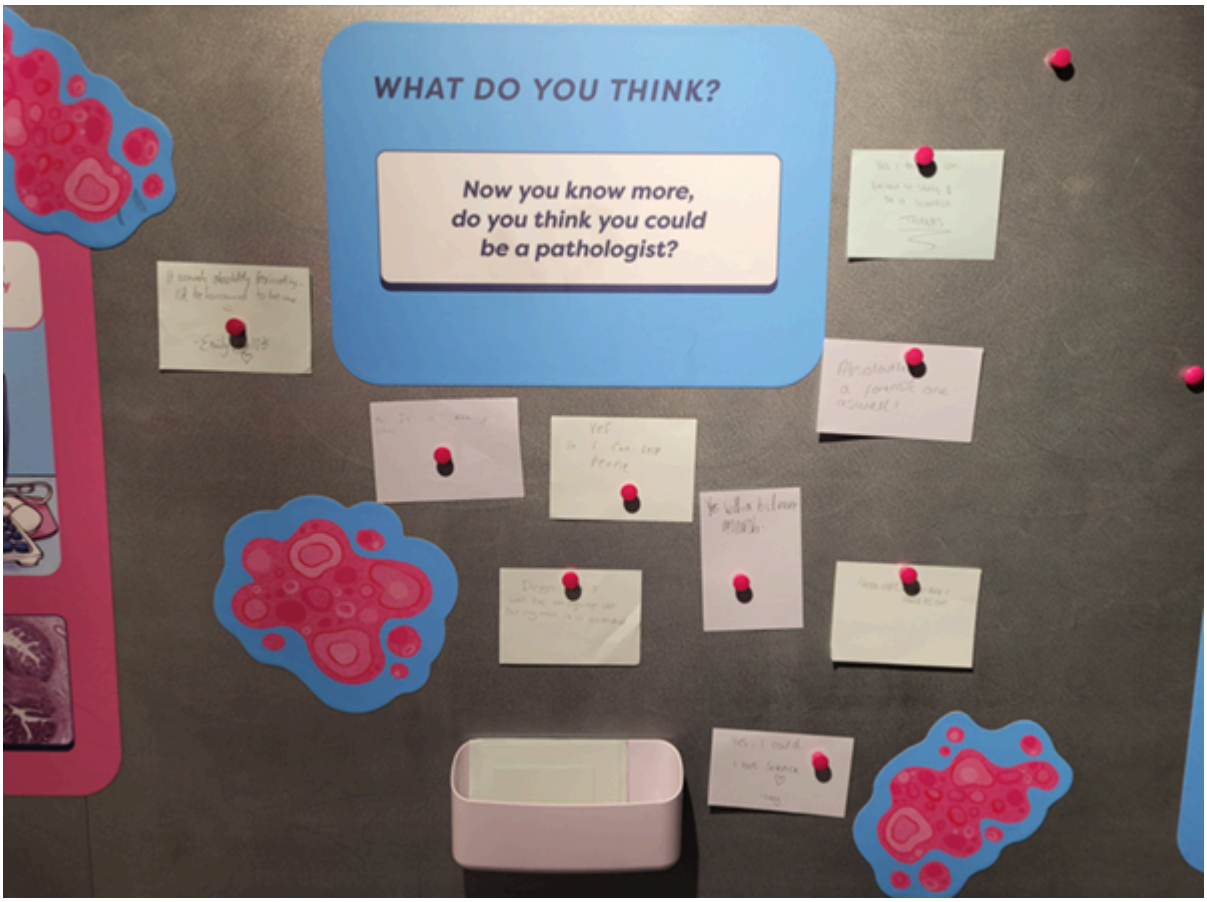
Background

We worked with the team at the Thackray Museum of Medicine in Leeds to create a histopathology exhibition entitled 'Behind the Microscope', which ran from February 2023 to August 2024. The exhibition included associated family workshops and dissection demonstrations, for example, hearts for Valentine's Day.

We focused attention on celebrating the exciting role of histopathologists and emphasising the important (but often not widely understood) role of pathology. In fact, as part of the pre-exhibition survey among visitors, 94% of respondents said they had 'heard of' pathology but less than 20% knew a lot about pathology and histology and only 25% were aware of pathology playing a part in their own past diagnoses.

The museum exhibition aimed to develop medical capital in the general population to help them understand what histopathology is and the role of those that work in this specialty. Furthermore, the exhibition aimed to empower visitors to feel confident to explore careers in pathology and identify the relevant skills.

Based on the expected audience, it was essential that the exhibition made pathology interactive and engaging for children. Therefore, cartoon-style images by the talented artist, Molly Pukes were included. As part of the exhibition, we obtained insightful feedback on the perceptions of pathology from the public.

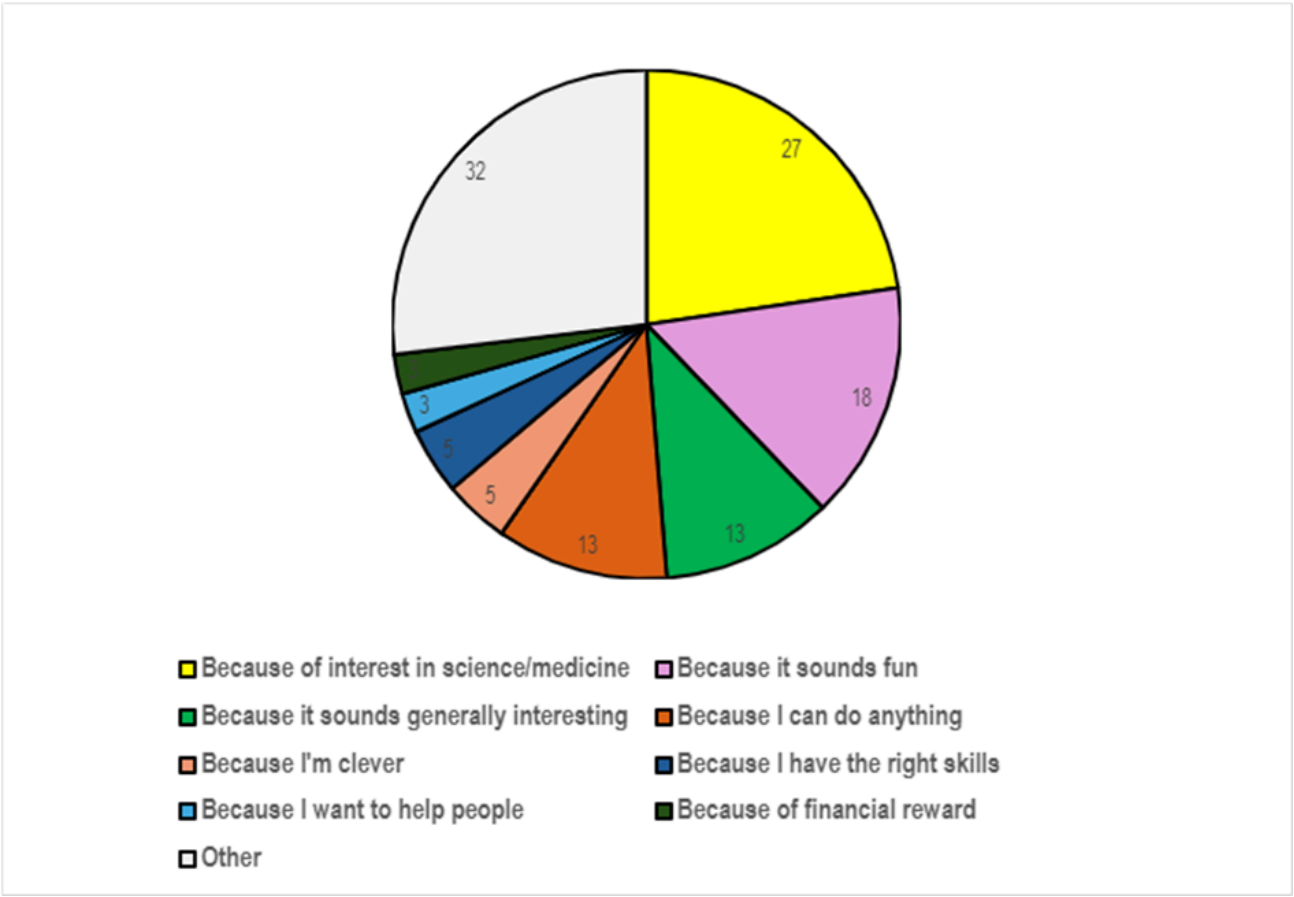


Visitor feedback at the end of the exhibition.

‘Now you know more, do you think you could be a pathologist?’

On leaving the exhibition, visitors were encouraged to interact by sharing their answers to the feedback question "Do you think you could be a pathologist?". Around 500 responses were obtained, with 275 offering details beyond yes or no. The answers could roughly be split into those who would be interested in being a pathologist (119) or already were a pathologist, medical student or worked in a related STEM field (18) and those who wouldn’t want to be a pathologist (138), with reasons given (Figure 1).

Figure 1: Pie chart showing reasons for visitors wanting to be a pathologist.



Despite, understandably, not everyone expressing a desire to become budding pathologists, many of the visitors still picked up on the skills necessary to be a pathologist. Others left with a growing understanding of the role but were not interested for other reasons. For example, "I have good pattern recognition but unfortunately this stuff grosses me out" and "very interesting but I'd never be able to identify anything as it all seems to look the same, but I do love the idea". These comments demonstrated the insightful and informed responses the attendees gave to the question of a career choice in pathology, following their engagement with this exhibition.

Comments relating to whether people would be interested in becoming pathologists or not are listed in Table 1. Overall, the positive comments expressing interest in pathology related to pre-existing interest in science and medicine, new interest attracted by the exhibition and its fun appearance, and recognising that they possessed requisite skills, such as pattern-recognition and attention to detail. Those responding 'no' to whether they could be a pathologist also offered multiple reasons. Moreover, the exhibition attracted medical students and pathology professionals alike, providing them with an opportunity to express pride in their work.

Table 1: Examples of comments from visitors identifying themselves as wanting to be a pathologist, not wanting to be a pathologist or already being a pathologist.

Yes – Reasons to want to be a pathologist

References to science and medicine:

"I enjoy learning more about medicine and the human body."

"You can help cure diseases and also I am fine around blood and other gross things so think I can enjoy it."

"I've looked at my cheek cell under a microscope and it was cool."

Interest attracted by the exhibition:

"It looks interesting."

"Might be fun to do it."

"Sounds interesting."

Pathology sounds fun:

"The job could be fun you could meet new people and make friends."

Possession of specific skills:

"I'm good at looking for details."

"I think that I would enjoy it. I like to find patterns."

"I am curious and interested and good and clever and good at reading."

"I am very curious."

No – Reasons for not wanting to be a pathologist

Too squeamish:
"I don't like looking at human body parts and blood."
"I have a fear of doctors and dentists."
"Terrible with hospitals."
"I can't even look at fake blood. I hate it!"
Perceived to be too much hard work or not clever enough:
"It seems like a very hard job that I don't think I could do."
"I am thick as mince."
"I failed chemistry A-level – twice."
Other preferred career in mind:
"I prefer music, I want to be a rockstar."
"I'm a footballer."
"I might be an author."
"I want to be a historian."
More interested in other science careers:
"I would rather be a surgeon."
"I would rather make prosthetic limbs."
"I will be an equine vet."
'Already am' responses
"I already am a histopathologist! I have the best job in the world."
"I am a pathologist and it is amazing."
"100% I already do it."

Lessons learnt for future public engagement events in pathology

- Interdisciplinary collaborations, such as those with artists, are a great way of generating excitement in a new way. Pathology can be seen as an art as well as a science! The use of characters and a storyline in the form of comic strips was highly effective in engaging a younger audience.

- Working with museums, such as the Thackray Museum of Medicine, can help to reach a larger audience of all ages and diverse backgrounds. Moreover, highlighting the importance of pathology in the wider context of other medical history displayed in this museum contextualises the central role of this specialty in current and historical medical practice.
- Pathologists enjoyed having a space to share their pride and excitement in what they do.
- A single public engagement event can lead to the generation of future follow-on events on a similar theme (e.g. the heart and eyeball dissection sessions we led as pathologists for the general public to follow and attempt practically at the Thackray Museum of Medicine), which also received very positive feedback.

We would like to thank the Thackray Museum of Medicine for their support in promoting histopathology. In particular, we would like to thank museum curator, Jack Gann, for his dedicated work on the exhibition, including compiling the visitor feedback, and Molly Pukes for their eye-catching artwork.

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Pathology Summer School 2024: inspiring tomorrow's pathologists

Students reflect on their time at this year's Summer School.

Published: 15 January 2025 **Author:** Kristen Pontello **Read time:** 5 Mins

We successfully hosted our annual Pathology Summer School on 8–9 August, welcoming 65 medical students from across the UK, to increase visibility of pathology among medical students.

This event provided a unique opportunity for students to explore the diverse career paths within pathology through interactive breakout sessions and informative lecture presentations.

Over the course of 2 days, students visited both the Royal College of Pathologists and the Gordon Museum of Pathology. They had the flexibility to tailor their experience to the pathology specialties of their interest. An evening BBQ encouraged networking, allowing students to connect with each other and engage in one-on-one conversations with consultants.

The feedback from the event has been overwhelmingly positive, underscoring the importance of early engagement with students in their educational journey. Some of our students have written about their experience below.

We extend our gratitude to our sponsors: the British Division of the International Academy of Pathology, the Pathological Society, the British Society for Haematology, the Association of Clinical Pathologists, the British Infection Association and the British Neuropathological Society.

Surpassing expectations

“The Summer School surpassed any expectations I had; it was arranged and executed extraordinarily well. On the first day, I took part in talks that progressively built on one another and gave me a comprehensive overview of the practice of pathology in the UK. The breakout sessions, which delved deeper into the pathology specialties, were interactive and problem-solving in nature. Pathology truly does make you feel like a medical detective.

On the second day, exploring King’s College’s Gordon Museum of Pathology was a fascinating experience where I could spend 20 minutes intrigued by a single specimen. I felt truly privileged to be there.

A highlight for me was socialising and reflecting with new friends over the best barbeque I've ever had.

One of the standout aspects across both days was the sheer joy and interest each speaker had around their specialty. They often had winding careers that finally led them to what they loved: pathology.

Having no prior interest or knowledge in pathology as a medical specialty, I was pleasantly surprised by how interested I suddenly became once the Summer School was over. Pathology is a weirdly attractive specialty and I'm grateful the Summer School has helped me realise this. Thank you RCPath!

– Tony Alocious, Second Year Medical Student at Imperial College London

Infectious enthusiasm

“ The Summer School was a unique and valuable opportunity that I wish was available for every medical specialty. I found that having the information delivered on each of the pathology specialties from the experts themselves was very engaging, and learning about current scientific advances encouraged me to do more research out of curiosity.

My favourite session was the haematology breakout, where we practiced blood typing, mock bone marrow aspiration and blood disorder diagnosis from example cases. This exposed me to the range of roles haematology has to offer and the interesting basic science behind it, and since then I've taken up other opportunities related to the field.

I also enjoyed hearing about the careers of various pathologists directly from them, and how they got involved in other things like research, public engagement and voluntary work. They had an infectious enthusiasm when talking about their specialty which meant that they were keen to give advice and answer questions, but also generally encouraged me to be positive about the future.

After attending this Summer School, I feel more informed and guided, career-wise, and better connected since I met lots of other friendly students as well, which made the experience twice as enjoyable.

– Emmanuel Ogunsakin, First Year Student at University of Southampton

A fantastic opportunity

“I’ve always been interested in pathology, so when I first heard about the RCPath Summer School, I just had to attend. The first day started with various lectures and breakout sessions involving some of the many specialties of pathology, like neuropathology and microbiology. With free lunch and accommodation sorted by the College, the day ended with a BBQ full of opportunities to network with the lecturing doctors and other attendees. This allowed for some great conversations with pathologists who gave fantastic tips on how to get started in their respective specialties. The wine wasn’t too bad either!

The next day ran in a similar manner – all within the Gordon Museum of Pathology in King’s College London. It contains a large collection of pathology samples, from molar pregnancies to gunshot injuries, polycystic kidneys and lungs with asbestosis. As medical students, we rarely have access to such a wealth of information.

Whether you have no interest in pathology or have decided that it is the career for you, this Summer School is a fantastic opportunity to explore a diverse subject that is often covered in little detail. You simply have to attend to see for yourself!
– Callista Middleton (Second Year Student at Queen's University, Belfast)

Fascinating insights

“The RCPath Pathology Summer School 2024 has truly been an outstanding experience. This event offered medical students an exciting opportunity to gain a deeper insight into various elements of pathology, through lectures as well as group breakout and workshop sessions.

It was incredibly inspiring to learn from the experiences of pathologists and hear how they embarked on a career in pathology and the journeys they took to specialise in this remarkable field. In addition to lectures, the breakout sessions and workshops offered fascinating insights into the various, flexible pathology training pathways and highlighted examples of cases that can arise in the day-to-day work of neuropathologists, haematologists, histopathologists, microbiologists, immunologists, clinical biochemists and chemical pathologists.

During the breakout sessions, we were able to further explore and learn from the wide range of pathology specimens present in the Gordon Museum of Pathology.

Moreover, the Summer School was a great opportunity to meet medical students from all over the country, who shared a similar genuine passion and curiosity for pathology. We even engaged in interesting conversations about the intricacies of disease and recent advances in pathology with pathologists, over a fun evening barbecue.

Thank you so much to the Royal College of Pathologists for planning, organising and delivering this unique, amazing and memorable Summer School experience!

– Shreya Kantamneni, Second Year Medical Student, UCL

Meet the author

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EVENTS MANAGER

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National Pathology Week 2024 – highlighting pathology is vital

National Pathology Week 2024 ran from 4 to 10 November and our theme, 'Pathology is Vital', inspired a variety of events around the UK and online.

Published: 15 January 2025 **Author:** Penny Fletcher **Read time:** 4 Mins

National Pathology Week (NPW) is our annual celebration of pathology, when we spotlight the important contribution pathologists make to healthcare. In this article, we look back at the highlights of NPW 2024.

Pathology Alliance collaboration

NPW ran from 4 to 10 November 2024. For the first time, NPW was delivered in a collaborative way by the Pathology Alliance – 10 organisations including the College, who are working together to discuss, collaborate, and promote pathology to government, the NHS, the private sector, industry and the public.

Current Pathology Alliance members are the:

- Association of British HealthTech Industries (ABHI)
- Association for Laboratory Medicine
- Association of Clinical Pathologists
- British Division of the International Academy of Pathology
- British In Vitro Diagnostics Association
- British Infection Association
- British Society for Haematology
- Institute of Biomedical Science (IBMS)
- Pathological Society
- The Royal College of Pathologists (RCPath).

The theme for NPW 2024 was 'Pathology is Vital' and we invited College members, pathology teams, and our stakeholders to use the hashtags #PathologyWeek and #PathologyIsVital to show their support on social media.

Joint online event: 'Pathology myths and misconceptions'

On 4 November, the College worked with 5 of the other Pathology Alliance organisations to deliver a joint online event, 'Pathology Myths and Misconceptions'. Aimed primarily at undergraduates and foundation doctors, but open to all, the event attracted 300 people and featured 9 talks and 11 speakers. Dr Suzy Lishman CBE hosted the webinar, and she opened the event with some audience polls including 'What does pathology mean to you?' and 'True or false – your hair and nails continue to grow after you die'.

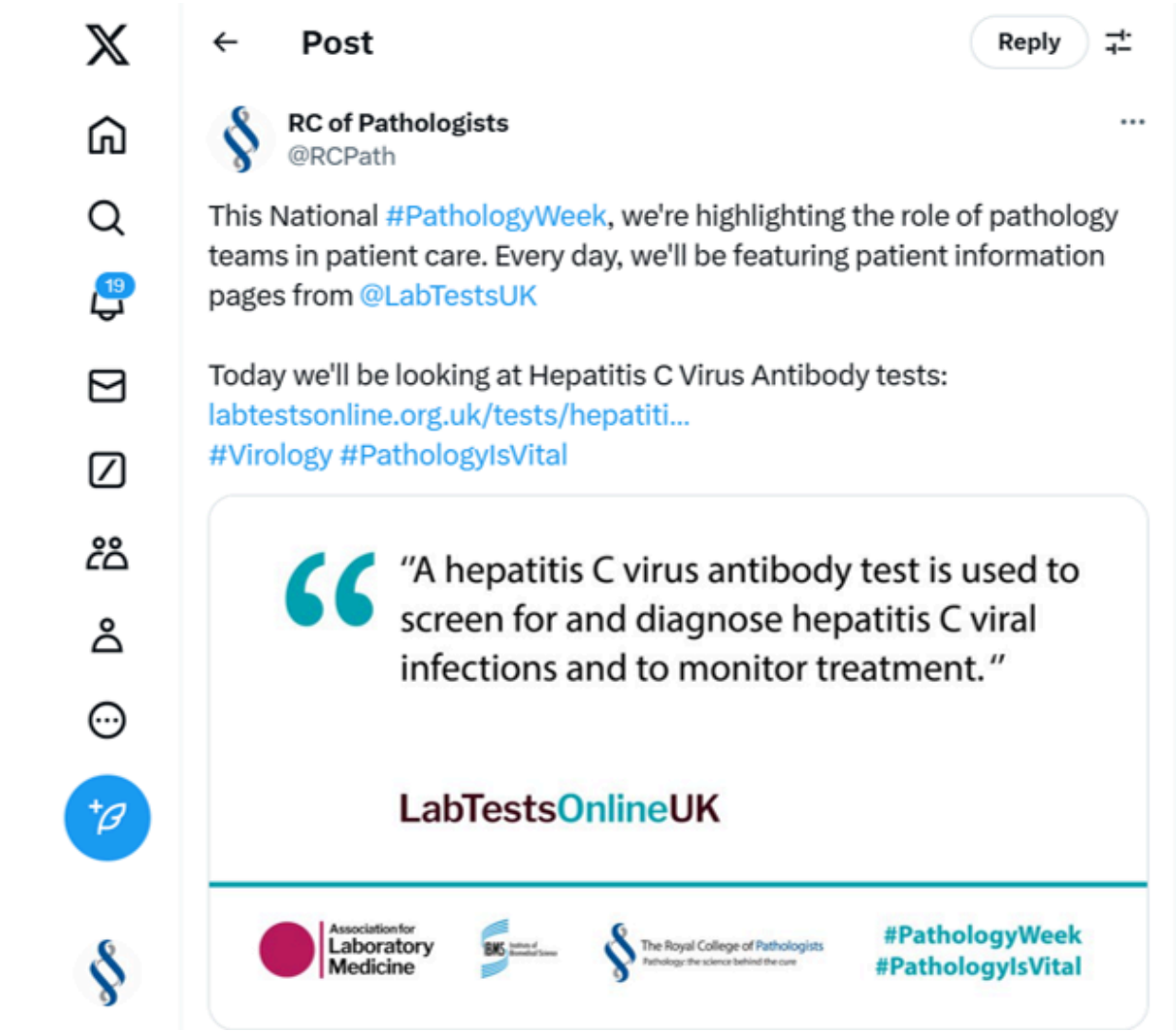
The specialty speakers, each representing one of the Pathology Alliance organisations, then covered a range of specialty areas and dispelled a range of commonly held myths about pathology, including 'AI will replace pathologists' and 'Taking antibiotics won't cause any harm'. The event recording has been used to create a series of videos with a different myth being explored in each one. You can watch these on our YouTube channel.

300 people attended the 'Myths and misconceptions' online event.

Engaging online audiences with new digital content

New content on the RCPath's careers pages was shared on social media during NPW. These featured new images taken at labs around the UK, and 15 new careers 'profiles', including clinical biochemistry, haematology and veterinary pathology. You can see all the specialty profiles here.

As part of NPW, the College also coordinated a joint social media campaign with Lab Tests Online UK's funding organisations. We worked with RCPath Trustee and Consultant Haematologist, Dr Shubha Allard and Principal Clinical Biochemist, Rebecca Powney (also a Lab Tests Online Board member) to develop engaging quote cards featuring different tests so that 1 test per day could be featured on X. The RCPath, the IBMS and the Association for Laboratory Medicine all posted the quote cards and accompanying text on their respective X accounts.



The College, IBMS and the Association for Laboratory Medicine posted quote cards to engage with audiences online.

Joint educational webinar with Roche Diagnostics

The College worked in partnership with one of our Corporate Members, Roche Diagnostics, to deliver an educational webinar, 'From Bench to Bedside' on 8 November 2024 as part of NPW. As a purely educational event, the webinar did not include any mention of Roche products or technologies. The webinar explored how greater collaboration between industry and academia can help accelerate frontline use of new diagnostic technologies. The concept of the event was put forward by representatives from Roche, and the College then recruited appropriate speakers and promoted the event to members and stakeholders. RCPath President, Dr Bernie Croal opened the event and took part in the panel discussion and Q&A.

The other expert panellists were:

- Dr Nick Brown, Consultant Medical Microbiologist
- Professor Zane Jaunmuktane, Consultant Neuropathologist

- Dr Ian Godber, Consultant Clinical Scientist.

The speakers discussed 3 different disease areas – antimicrobial resistance and sepsis, Alzheimer's and dementia, and heart disease. Each speaker covered:

- the scale of the problem (UK focus)
- what role diagnostic technologies can play in relieving the burden
- why it is taking so long for diagnostic innovations to reach the NHS
- a call to action to help accelerate frontline use of new tests.

Around 270 attendees joined the webinar live and many more registered so we have shared the recording of the event with those who could not attend on our YouTube channel.

Feedback from those who attended was overwhelmingly positive. Attendees were asked to rate how useful they found the webinar. The majority answered that they had found the webinar useful, rating the event 4/5 or 5/5. Attendees also provided comments on the event. One remarked, "Thank you for organising these events, very insightful" and another said "Excellent speakers and a well put together webinar. Thank you."

We plan to run more educational webinars in partnership with industry next year.

Member-led events

A variety of member-led events took place throughout the week, from workshops on topics including 'Objects and Emotions in Medical Museums' to career guidance events like Path to Success 2024. You can find out more about these events in our news post round-up. We supported members with their events around the UK, sending them careers booklets and branded materials to share. We also highlighted their events on our website. Thank you to all members and their teams who organised something for NPW. We appreciate your help in highlighting that 'Pathology is Vital'.

Save the date!

NPW 2025 will run from 3 to 9 November. We'll announce the theme on our website in early 2025.

Meet the author

PENNY FLETCHER

CORPORATE AND PUBLIC ENGAGEMENT MANAGER

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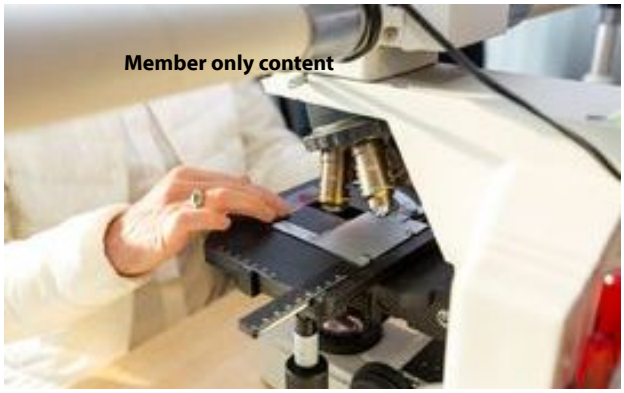

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College members highlight the importance of pathology at the Science Museum's 'Journey of Life Lates' event

The College delivered activities at the Science Museum in September.

Published: 15 January 2025 **Author: Penny Fletcher** **Read time: 3 Mins**

Following public engagement training at the College, 4 of our members and their teams delivered original engagement activities at a high-profile event attracting thousands.

The College was delighted to deliver activities at the Science Museum's 'Journey of Life' Lates event on 11 September 2024. Sponsored by the Bill and Melinda Gates Foundation, the high-profile event focused on health inequalities, communicable diseases and a range of other health-related topics.

Engagement activities

We delivered 4 activities exploring a variety of pathology specialties as part of this event. The activities were devised by Dr Arthi Anand, Dr Nathan Moore, Dr Angeli Arthur and Victoria Heath after they attended our Advanced Public Engagement Training course in February 2024. Delivery of the activities at the Science Museum event involved 25 volunteers, most of whom were RCPath and Institute of Biomedical Science members.

The lively and interactive activities included a giant Snakes-and-Ladders-style game related to HPV and cancer (created by histopathology trainee, Dr Angeli Arthur), and an equally giant dice-based game exploring historical facts and stories about antibiotics and antimicrobial resistance (devised by senior healthcare scientist, Victoria 'Kip' Heath).

Medical microbiology consultant Dr Nathan Moore's activity was a microbiology-themed 'dating app' that highlighted the links between climate change and infectious diseases. Consultant clinical scientist Dr Arthi Anand's activity highlighted histocompatibility and immunogenetics and compared patterns of stem cell donor availability across the world.

The event was open to people over the age of 18 and was part of the Science Museum's Lates event series, which attract thousands of people from diverse backgrounds. We were delighted that past-President Professor Mike Osborn, Chair of our Trustee Board, Vince Voon, and Clinical Director for Publishing and Engagement, Professor Angharad Davies, could attend the event. They all enjoyed the activities being delivered by both College members and other groups of medics and scientists.

Past-President, Professor Mike Osborne attended the Lates event.

Return to Science Museum Lates

This was the first time the College has delivered an activity for the Science Museum Lates since January 2020. We ensured that we highlighted the event and our involvement to College Officers, local patient groups and London-based medical students.

The link between our public engagement training and the high-profile Science Museum Lates events is longstanding, and an opportunity that College members hold in high regard. Several of our past and present Honorary Officers have been involved in previous advanced training and

subsequent Lates events and have gone on to deliver their activities at numerous other events, including those run for patient groups in their own Trusts.

We have currently paused the public engagement training due to financial constraints and are exploring ways to fund this excellent programme again in the future.

Our thanks to all College members and their teams involved in the 'Journey of Life' Lates event. If you would like to find out more about the event and/or the activities, please contact the Corporate and Public Engagement Manager, Penny Fletcher.

Meet the author

PENNY FLETCHER

CORPORATE AND PUBLIC ENGAGEMENT MANAGER

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An update on cervical cancer screening in Moldova in collaboration with the College

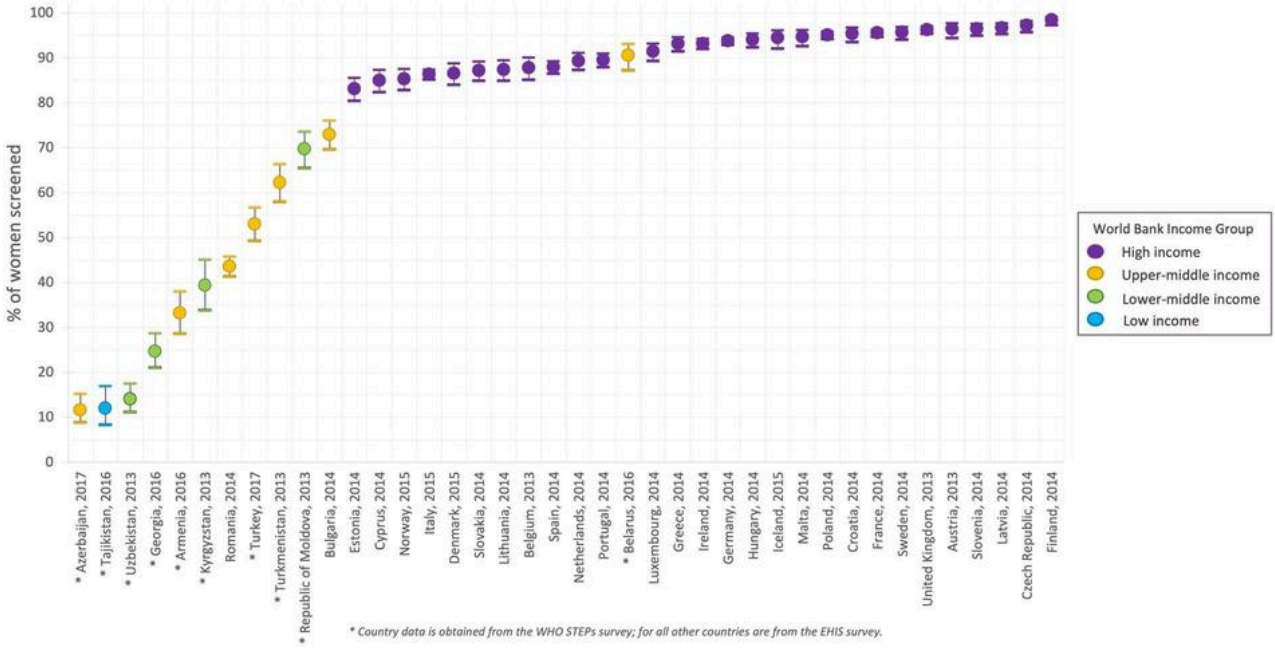
How is international collaborative work improving diagnosis and prevention of cervical cancer?

Published: 15 January 2025 **Author:** Charles van Heyningen **Read time:** 5 Mins

Dr Charles van Heyningen, former College International Regional Advisor for Europe, reports on the progress of collaborative work to improve cervical screening in Moldova.

Cervical cancer testing rates in Europe were found to be lower in countries such as the Republic of Moldova (Figure 1).[1] Moldova has a total population of about 4 million, of which 1.3 million are women aged 15 years and older who are at risk of developing cervical cancer. Estimates indicate that every year 480 women are diagnosed with cervical cancer and 248 die from the disease.

Figure 1: Proportion of women aged 30–49 years who reported receiving a cervical smear test, by country and year.



In Moldova, 70% were screened compared with 95% in the UK.[1]

Working together

The Royal College of Pathologists is 1 of several medical institutions that has played a leading part in supporting the development of the gynaecological pathology service for cervical screening in Moldova. An international collaboration began in 2016 between the College, the International Cervical Cancer Prevention Association (ICCPA) and the British Association for Cytopathology (BAC) to strengthen Moldovan pathology services.

Diana Valuta, Head of the Cervical Cancer Screening Coordination Unit in Moldova, said in 2022: "For 10 years we have been fighting for the health of women in the Republic of Moldova. During this time, we have not been alone in our struggle, we have been supported by many partners. I would like to thank the Ministry of Health of the Republic of Moldova, international organisations, medical institutions, young volunteers and all those who have joined efforts to eliminate cervical cancer. We are different, but we fight for the same cause, to save the lives of our women."

Increasing awareness

During Moldovan Cervical Cancer Prevention Week, held in January 2022, several public information and awareness actions called on women to take regular prevention cytological tests to maintain their health (see the poster below). The campaign "Stay healthy. Do the Papanicolaou (PAP) test" was one of the actions to raise awareness. A previous survey conducted in 2020

showed that the knowledge of Moldovan women aged 25–61 years about the cytology screening test increased from 47% in 2018 to 62% in 2020, and the number of women tested doubled.

In addition to informing and changing women's behaviour, important results in the health system have been achieved, such as the establishment of the Cervical Screening Implementation Coordination Unit and the National Reference Centre in Colposcopy. A national colposcopy network was launched in 2023 and uses videoconferencing to view images online. At the same time, medical specialists are being trained by UK histopathologists, and the cytology laboratories have been given updated equipment.

A poster used during Moldovan cervical cancer prevention week in January 2022, reads: "The health of women is important during the pandemic. Take the cytology test in safety."

Sharing expertise

Dr Michael Coutts, Consultant Pathologist at Maidstone and Tunbridge Wells NHS Trust, has been working alongside a team of pathology professionals from the UK on supporting all areas of the new cervical screening process, from planning its development to welcoming its first patients. Moldovan colleagues continue to share cases with him to corroborate their findings with his professional opinion.

Dr Coutts has delivered workshops and webinars to the majority of Moldovan pathologists working in the state sector (see the image below). Plans are now being developed to welcome more Moldovan pathology colleagues to Maidstone Hospital in Kent to further improve their practice.[2]

Dr Michael Coutts (looking towards camera) teaching Moldovan pathologists in a workshop on cervical cancer screening (May 2024).

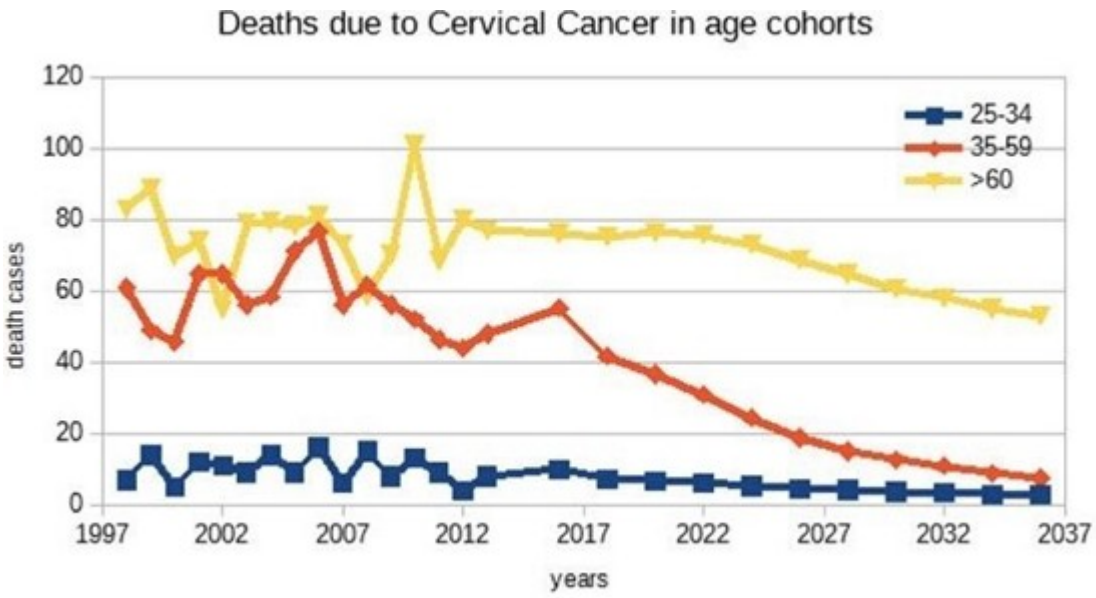
Making progress

Statistical data shows that the number of women in Moldova who have undergone cytology screening has almost doubled in 3 years, increasing from 36% in 2021 to 62% in 2023. Hence, Moldova should achieve at least 1 of the World Health Organization (WHO) cervical cancer elimination targets for 2030, which is that 70% of women are screened with a high-performance test by 35 years of age and again by 45 years of age.[3] At the same time, more cases of cervical cancer are being detected early – at the first and second stages.

Another WHO target is that 90% of girls should be vaccinated against human papilloma virus (HPV) infection by age 15 years; so far, 62% have been vaccinated by that age.[4]

Projected cervical cancer mortality to 2037 based on data from the Institute of Oncology and Statistics Moldova is shown in Figure 2. The screening programme now has the necessary mechanisms to eliminate cervical cancer in the long term; by 2025, a 25% decrease in incidence and a 5% decrease in mortality is expected.

Figure 2: Selected demographical historical data until 2016 and projection (averaged) until 2037 on cervical cancer deaths in age cohorts based on data from the Institute of Oncology and Statistics Moldova.



Having been involved in the initial RCPath scoping visit to Moldova's capital city ChiÈ⊠inÄ⊠u, it is very satisfying to see this collaborative venture making significant progress. Moldova is on track to achieve 2 WHO cervical cancer elimination targets for 2030 – namely, that 70% of women are screened by age 35 years and 90% of girls receive the HPV vaccine by age 15 years.

References available on our website.

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FORMER COLLEGE INTERNATIONAL REGIONAL ADVISOR FOR EUROPE

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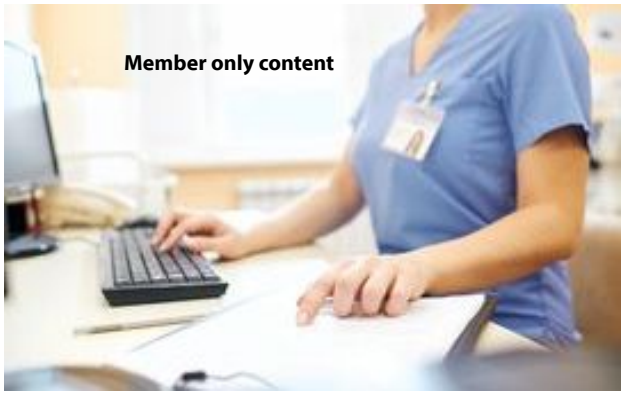

Learning points from the Synnovis cyber-attack from the Pathology Informatics Committee

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International Pathology Day round-up: The rise of global antimicrobial resistance

This year covered antimicrobial resistance around the world.

Published: 15 January 2025 **Author:** Kelley Price **Read time:** 8 Mins

International Pathology Day included discussions on the global nature of antimicrobial resistance. Speakers from around the world discussed the evolution and consequences of antimicrobial resistance, and how healthcare services can fight it.

On 6 November 2024, we held our annual virtual conference for International Pathology Day, themed 'The rise of global antimicrobial resistance' (AMR), once again in partnership with the British Society for Haematology. The President, Dr Bernie Croal, chaired the event. He welcomed 8 speakers and 4 roundtable panellists from around the globe. Over 100 attendees joined the event from across all the 6 regions in which the College has a presence: the Americas, Europe, the Middle East, Southeast Asia, Sub-Saharan Africa and the Western Pacific.

The talks

In conversation with Dr Noha El Sakka, Vice President for Communication

Dr Noha El Sakka started by reflecting on the College's Diamond Jubilee lecture given by Dame Sally Davies in 2022, who spoke about how she had managed to engage the United Nations with the issue of AMR, starting in 2016 with a high-level meeting at the UN General Assembly. A second high-level meeting was held in September 2024 and this was the main focus of the IPD event discussion.

College Vice President for Communications, Dr Noha El Sakka discussed United Nations' efforts on AMR.

Some of the successes of the UN meeting, included commitments for financing for low- and middle-income countries, and an agreement to establish an independent science panel to advise countries on the evidence base on AMR. Other areas of the discussion considered the roles of the private and public sectors, the importance of animal husbandry and the environment in the fight against AMR, and how can we better engage the public on AMR.

There was also an important and inspiring call to action for pathologists from Dame Sally. Pathologists have an important role to play, both in their daily practice but also in engaging and educating other healthcare workers in the hospital and the community and helping them to identify ways of reducing AMR.

The conversation ended with heartfelt encouragement from Dame Sally, for pathologists to keep up the good work and make a difference together.

Former Chief Medical Officer for England, Dame Sally is now the UK's Special Envoy on AMR.

The evolution of antimicrobial resistance with Professor Angharad Davies, Clinical Director of Publishing and Engagement and honorary Consultant Medical Microbiologist

This presentation set the scene for the day's discussions, by asking when and how AMR first arose, and looking at the mechanisms by which AMR evolves in bacterial pathogens. Professor Davies gave a brief snapshot of the current situation regarding AMR globally, who is most impacted and some of the inequalities which are evident, and some predicted future trends.

The social burden of antimicrobial resistance with Professor Clare Chandler, Medical Anthropologist at the London School of Hygiene and Tropical Medicine

This talk introduced the concept of the social burden of AMR in 4 dimensions. First, the uneven distribution of AMR within human populations, which disproportionately affects the poorest and most vulnerable between and within countries. Second, the unequal burden of AMR experiences, which affect both patients and those who care for them for often extended periods, leading to potentially catastrophic opportunity costs, especially for those without economic and social safety nets.

Third, she discussed societal changes effected by AMR through shifting human–microbial–antimicrobial relationships. Finally, Professor Chandler covered the socially uneven nature of those shouldering the burden of AMR interventions,. Professor Chandler's talk included a powerful story about a patient in Thailand and his battle with infection due to AMR.

Professor Clare Chandler's talk explored the social burden of AMR.

Wastewater surveillance, opportunities and challenges with Dr Wael F Elamin

Dr Elamin began by giving some background on the interesting history of wastewater surveillance, starting with the Victor Hugo's *Les Misérables* quote: 'The sewer is the conscience of the city.' Wastewater is frequently considered only as is a source of pollution; but, it has the potential also to be an important source of information – as it was for example when wastewater was monitored during the COVID-19 pandemic for surveillance purposes. Dr Elamin asked why we do not do this continuously and in real time, looking for the knowns and unknowns?

Dr Elamin's talk also conveyed how wastewater can be a source of microorganisms that affect the health of humans, animals and ecosystems. Therefore, wastewater microbiological surveillance can benefit from the One Health approach, acknowledging the interdependence of human, animal and environmental health, and requiring the cooperation of different disciplines and sectors to achieve optimal health outcomes.

Dr Wael Elamin spoke about how wastewater can be studied to understand human health.

Strategies to reduce infection complications in acute myeloid leukaemia with Dr Justin Loke, CRUK/AACR Transatlantic Fellow, University of Birmingham, UK and Dana-Farber Cancer Institute, USA

Infection remains a major cause of morbidity and mortality in patients with acute myeloid leukaemia (AML). In this talk on behalf of the supportive care subgroup of the UK AML research network, Dr Loke discussed the unique infective challenges faced by this group of patients undergoing treatment, the landscape of innovative trials currently on offer in the UK and future strategies in development to reduce the burden of infective complications.

Dr Justin Loke's talk focused on the infection complications in patients being treated for AML.

The College's position statements on AMR

During the lunch time activities, Dr Natasha Ratnaraja, Chair of the Medical Microbiology and Medical Virology Specialty Advisory Committee, and Danny Scarsbrook, College Policy Officer, delivered a talk about the College's position statements on AMR. They highlighted how medical microbiologists and virologists are at the forefront of tackling AMR, delivering leadership and expertise in antimicrobial stewardship, advising on infection prevention and control, delivering diagnostic services, and contributing to national surveillance systems.

These duties are not without their challenges, however, with workforce shortages and sub-optimal diagnostic capabilities often hindering the ability of clinicians to conduct their work. Considering this, the College has begun to develop a series of position statements on AMR, highlighting key issues faced by clinicians and proposing solutions. These position statements will form the basis for engagement with MPs, government officials, likeminded organisations and the NHS.

Roundtable discussion: Global perspectives on AMR

College President, Dr Bernie Croal hosted the IPD roundtable.

The roundtable discussion chaired by College President, Dr Bernie Croal, focused on global perspectives on AMR, drawing inspiration from the 6-part webinar series that was hosted by the International team last summer. The discussion delved into regional challenges and opportunities, involving shared experiences and global experts.

The speakers in the roundtable were: Dr David Jenkins, consultant in medical microbiology, from the UK; Professor Daniel Thirion, Pharmacist, Université de Montréal, Montreal, Canada and McGill University Health Centre, Canada; Professor Margaret Ip, Faculty of Medicine, Chinese University of Hong Kong; and Professor Samuel Taiwo, Consultant Clinical Microbiologist, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.

The roundtable discussed the prevalence of AMR across different countries and identified the key priorities for addressing this urgent issue. Some of the questions the roundtable panellists discussed included: What is being done well to address concerns about AMR in your region of the world? From a global perspective, what can we learn from each other and what can be highlighted to other countries? Is there any scope for collaboration?

Poster competition

The theme of this year's competition was 'Conquering superbugs: Innovations in combating AMR'. A range of research ideas across all specialties was encouraged – from the event's theme to more general pathology-related works that entrants were proud of and wanted to spotlight.

We received a record breaking 16 entries – the most entries in competition's 6-year history. Posters were assessed by Professor Tahir Pillay, Clinical Director for International Activities, Dr Natasha Ratnaraja, Chair of the Medical Microbiology and Medical Virology Specialty Advisory Committee, and Dr Jeff Allen, RCPath Lay Advisor.

A huge thank you went to everyone who had taken the time to creatively design a poster for this year's competition before the 3 winning posters were announced.

In first place: HISTOSCOPE: AI-assisted classification of breast cancer histopathology images, by Samiha Jainab, Natalia Raj, Dr Taufiq Hasan and Dr Farida Arjuman

In second place: Multidrug resistance in Paediatric infections: Problem and possible solutions, by Abhishek Ranganathan and Sanjay Deshpande.

In third place: From mosquito to microscope: A rare case of subcutaneous dirofilariasis in a 13-year-old, by Maria Vidhishia Rebello, Dr Sueallen Lorna D'Souza and Dr Nisha J Marla.

All entries can be viewed on our website.

Undergraduate quiz for National Pathology Week and International Pathology Day 2024

On Wednesday 13 November, we also hosted a pathology-themed online quiz for undergraduates all over the world studying medicine, biomedical science, or similar degrees. Dr Matthew Clarke and Dr Reham Hassan lead teams through 5 fun-filled rounds.

Congratulations to the winning team, Starry Sky Savants from Edinburgh University Medical School: Roshan Pillai, Shun Wen (Dylan) Chew and Nicholas Yip Zhe Wei.

Thank you to everyone that took part.

Acknowledgements

Thank you to the British Society for Haematology for partnering with us again, to all our speakers, poster competition judges, attendees and to DJ Kempat for providing the track that we played during the event's intervals.

We hope you will join us next year on Wednesday 5 November 2025 as we explore the global pathology workforce. Further details of the virtual event will be available later in the summer. Until then, take care.

Meet the author

KELLEY PRICE

INTERNATIONAL PROJECTS OFFICER

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

The William Tong Prize 2024 – Unveiling the unknown: metagenomics to diagnose unexpected causes of encephalitis

The William Tong Prize is awarded to trainees or students for outstanding original work in clinical virology.

Published: 15 January 2025 **Author:** Dr Julianne Brown **Read time:** 5 Mins

Dr Julianne Brown explains her work on the use of metagenomics to diagnose unexpected causes of encephalitis.

The William Tong prize was established in 2018 in memory of the late William Tong, who had just stepped down as Chair of the College Panel of Examiners in Virology. William Tong's family and friends raised funds to establish the prize in his name, to be awarded to a trainee or student for outstanding original work in clinical virology.

At this year's UK Clinical Virology Network annual conference, the William Tong Prize was awarded to Dr Julianne Brown for her work on metagenomics in diagnosing unexpected causes of encephalitis.

Dr Julianne Brown is a Higher Specialist Scientist Training (HSST) trainee and Principal Clinical Scientist in Molecular Microbiology and Virology at Great Ormond Street Hospital for Children NHS Foundation Trust, where she is responsible for delivering the clinical molecular microbiology service for diagnosis of infection, including bacterial and fungal polymerase chain reaction (PCR) and untargeted metagenomics for pathogen detection in sterile site and respiratory specimens.

Case outline

A 16-year-old boy presented to hospital with progressive headache, ascending muscle weakness, generalised tonic-clonic seizures and myoclonic jerks. He was disorientated with photophobia, phonophobia and difficulty swallowing and chewing. Progressive breathing difficulties due to weakness led to ventilation and admission to an intensive care unit.

15 years earlier he had undergone a haematopoetic stem cell transplant (HSCT) following a diagnosis of primary hemophagocytic lymphohistiocystosis (HLH). At 10 years old, he was started on immunoglobulin replacement therapy for antibody deficiency but was otherwise previously well, cognitively normal and attending school with no neurological concerns.

On admission he was found to be severely lymphopenic and brain magnetic resonance imaging (MRI) showed bilateral widespread cortical changes. A brain biopsy and 3 cerebrospinal fluids (CSFs) were all negative by culture and by PCR targeting several viruses and bacteria. Clinical and radiological findings were suggestive of central nervous system HLH; therefore he was treated with intensive immunosuppression, but with no response.

Metagenomics was performed on the brain biopsy. Unlike PCR, which targets and detects specific genome sequences, metagenomics sequences all the RNA and DNA in a sample which includes not only human sequences but also the genomes of any organisms present. The human sequences are removed, and the remaining sequences are analysed to identify any organism present. Since the method is untargeted it allows detection of rare, unexpected or novel organisms (Figure 1).

Metagenomics uncovered the presence of avian paramyxovirus 1 (APMV-1), later confirmed in brain tissue by PCR and immunohistochemistry. APMV-1 is shed in pigeon faeces and is endemic worldwide. In birds it can be highly pathogenic, causing pneumoencephalitis (also known as Newcastle Disease) with up to 100% mortality. Notably the virus was not detectable in CSF by any method, therefore the diagnosis was only made possible with brain biopsy. Following the APMV-1 diagnosis, the patient's immunosuppressive medication was reduced and he was treated with antivirals. However, he continued to deteriorate and unfortunately died 8 months after symptom onset.

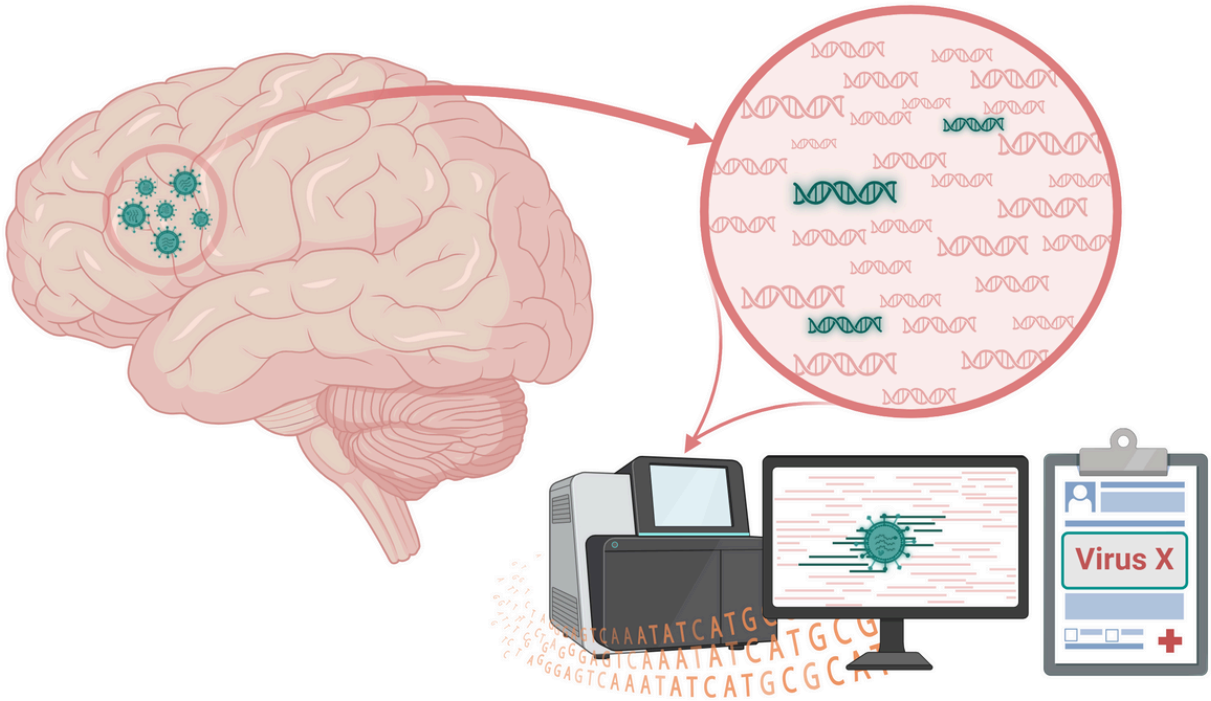

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Figure 1: Schematic of clinical metagenomics to diagnose infectious causes of encephalitis. Total DNA and RNA are sequenced from a brain biopsy (or CSF), including human and non-human genomes. Non-human sequences are analysed to identify any organisms present in the specimen. Metagenomics is untargeted and therefore requires no a priori assumptions or knowledge of the causative organism.

Metagenomics in encephalitis diagnosis

Despite being endemic in birds, APMV-1 is an extremely rare cause of severe disease in humans. Only 2 other cases of fatal encephalitis caused by APMV-1 have been described worldwide, both in immunosuppressed children; 1 in France and the other in Australia.[1,2] For this reason, APMV-1 is not part of targeted testing in encephalitis. Diagnosis of infectious encephalitis largely relies on culture and/or targeted PCR in CSFs and brain biopsies. This works well for infections with well-characterised aetiologies, in which all the causative organisms are known and can be tested for.

However infectious encephalitis has an extremely broad aetiology. The list of causative organisms becomes even longer if a patient is immunosuppressed or has a relevant travel history. CSFs and brain biopsies are small-volume, precious samples. Therefore, testing is usually limited to the most common organisms associated with disease; if they are negative, the cause remains undiagnosed. Consequently, for a third of cases of encephalitis there is no diagnosis.[3]

Metagenomics is proving to be instrumental in the diagnosis of infectious encephalitis caused by rare, unusual or unexpected organisms that are unlikely to be or cannot be detected by other methods. At the Great Ormond Street Hospital Department of Microbiology, Virology and Infection Prevention & Control we offer the UK's first UKAS-accredited metagenomics service for

CSFs and tissues, most of which are from patients with encephalitis without a diagnosis.[4] With 10 years' experience we have enabled the diagnosis of several cases of encephalitis,[5–8] most with rare or unexpected organisms that, if it weren't for metagenomics, would remain undiagnosed.

References available on our website.

Meet the author

DR JULIANNE BROWN

PRINCIPAL CLINICAL SCIENTIST, MICROBIOLOGY, VIROLOGY AND INFECTION PREVENTION & CONTROL, GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS FOUNDATION TRUST, LONDON, UK

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

Letter to the Editor – A truly remarkable pathologist

Professor Brian Summers reflects on the life and work of Professor Christopher Fletcher.

Published: 15 January 2025 **Author:** Professor Brian Summers **Read time:** 1 Min

I was very distressed to read in the Bulletin of the death of Chris Fletcher. Over the years, he was extremely kind to me and examined a number of my puzzling cases, including dogs, horses and others. A feature of his reports was that he always found something I had written to agree with, even when I was off the mark. To assist as rapidly as possible, I recall that each report was always sent by fax (that gives you a time frame) with the airmail version following.

A truly remarkable pathologist, sorely missed.

The College's apprecation of Professor Chris Fletcher was published in the October Bulletin.

Meet the author

BRIAN A SUMMERS
RETIRED VETERINARY ANATOMIC PATHOLOGIST

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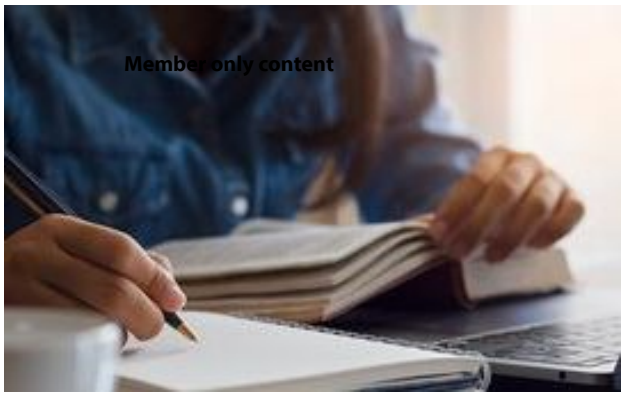

Book review – Diagnostic Pathology: Molecular Oncology, Third Edition

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

Examinations results: January 2025

Our congratulations to everyone on their examination results.

Published: 15 January 2025 **Author:** The Examinations team **Read time:** 10 Mins

Successful candidates for the Part 1 Examination

The following candidates have passed all components of the relevant Part 1 examination.

Allergy and clinical immunology

Cassim Akhoon
Fatema-Zahra El Rhermoul
Jenny Heward
Cliodhna Murray
Mohammed Omer Mohammed Omer Elhaj

Clinical biochemistry

Ruqaiya Al Dhuhli
Fatema AlFarsi
Fawaz Noureldin Shikheldin Ali
Swathika Annamalai
Jacob Cassar
Saranjeev Chodha
Marwa Elgizouli
Terry Terfa Gbaa
Emma Henly
Agnieszka Jakubowska
Vatsala Khurana
Deepa Maria Kuttikadan Varghese
Ulf Daniel Lundqvist
Henry Okpara

Sivatharshana Prashanthan
Mir Furruq Ali Quadri
John Rafferty
Kishanjalee Rammuthupura
Sneha Roosan
Gary Roulston
S.M.P.P. Samarakoon
Mohammed Abdul Bari Siddiqui
Jonathan Strachan
Matthew Waite
Marketa Zajicek

Genetics

Sarah Elizabeth Dixon
Andrew Fleming
Hannah Green
Frances Elizabeth Macrae
Thomas Monk
James Oliver
Lorna Wilkinson

Haematology

Sneha Abburu
Mohamed Abdeldayem
Reem Ahmed
Aatika Ahmed
Muhammad Nakib Monjur E Amin
Natasha Anthony
Muzna Aquil
Muhammad Salman Arif
Evelyn Aun
Tin Kyaw Kyaw Aung
Munazza Awan
Lekshmy Balakrishnan
Harshavardhan Bandi
Unmesh Bandyopadhyay
Eisha Yehia Anwar Tawfik Bayad
Urmimala Bhattacharjee
Mahmoud Bokhary
Simone Carr
Michael Caruana Dingli
James Clarke
Siddhartha Dilip Dalvi

Vismaykumar Deshani
Christopher Blair Donley
Nada Fadlelmula
Marylou Fenech
Cliona Flanagan
Robert Forsythe
Joseph Froggatt
Dreen Gul
Vinay Anand Guntiboina
John Harford
Sarah Idris
Anupama Janaki Krishnamoorthi
J.M. Harshani Bandara Jayakody
Dinoosha Sudrikku Jayawickrama
Kekulawala Vidanalage Oshani Tharagani Kekulawala
Shukrya Khan
Maryam Khan
Wei Lynn Khor
Antara Gohain Kumar
Pei ling Low
Stuart Macleod
Sarah Mant
Danish Ahmed Memon
Kate Milne
Alan Mitchell
Sarah Mohamed
Ahmed Mohamed
Tendaishe Terence Mutize
William Onyinyechukwu Nwakozor
Chidinma Obieze
Godwin Omini
Robert Osborn
Utkarsh Painuly
Diviyesh Valji Panchani
Athanasia Sinti Papadaki
Aisha Patel
James Phillips
Lakeesha Nilani Piyasundara
Jane Potter
Reem Ramli
Buddhika Jeewani Ekanayake Ranwadan Mudiyanselage
Lianna Reynolds
Jane Rutherford
Wasia Salam
Lokumeegodage Uththara Hansini Sarathkumara

Sashiprabha Senevirathne
Sidhant Seth
Anjali Shrestha
Georgina Simpson
Philippa Stimpson
Lalendri Tukkawadu
Vaishak Vidyadhar
Maggie Wing Yin Wong
Adilah Alia Zaki Morad
Rozina Zeeshan

Histocompatibility & immunogenetics

Kylara Hassall
Nicola Thal

Histopathology

Archana
Rituraj
Ammatul Mugni
Hema A V
Ahmed Abbasi
Mona Mohammed Mamdouh Abdelfattah Abdelghany
Ahlam Abdul Razak
Khaled Aboshiesha
Sawsan Abou-Khamseen
Muna Abuhejleh
Sara Abusini
Luqman Adebayo
Mohit Agrawal
Priyamvada Agrawal
Afsana Ahmed
Zishan Akhtar
Rasha Abdulmalik Badri Al-Noori
Nowar Al Azzam
Fawziya Fawzi Naji Al Rubaye
Lina Alanazi
Shaymaa Amer Mohammed Al-Bayati
Sawsan Alhassan
Alisha Aliyar
Astabraq Alomran
Kawthar Alsoud
Qabas Alsumaidaee
Aafrinish Amanat

Faizan Amer
Jennifer Ansett
Tala Arar
Anu Arava
Naomi Moraa Ariaga
Margaret Atim-Oluk
Babatope Lanre Awosusi
Sowmya B U
Vidhya Vikashini Balasubramaniam
Kolawole Bankole
Victoria Barker
Susie Bradwell
Sumaira Bukhsh
Rachel Carnochan
Chak Man Chan
Wai Tung Chan
Sri Sughanya Chandrasekaran
Farhana Chathoth Kannoli
Tsz Fan Cheng
Tung Cheng
Chun Chau Lawrence Cheung
Raymond Chimatira
Yee Shuen, Darren Chua
Christopher Chua
Ryan Clark
Menila Daniel
Neetu S Dathan
Michelle Petra De Padua
Kishori Dhulipala
David Egong
Manori Ekanayake
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Robert Farrell
Shafik Fwakhrji
Nicola Gilmour
Bidyut Bikash Gogoi
Sarah Grace Priyadarshini
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Andrea Hennessy
Mohammad Sowkat Hossain
Ko Ko Htwe
Monalisa Hui
Hirra Iftikhar

Gurupriyaa J
Asawari Jadhav
Navya Jaiswal
Farah Jalaly
Taye Jemberu
Akshara Jogi
Nikhita Elizabeth Josy
Narendra Kalavathi Lakshmana
Nehal Kamel Hussien Kamel
Alefiya Kanpurwala
Alina Karna
Dulanji Rangana Karunaratne
Shifa Khan
Afnan Khan
Farah Khizar
Jared Kok
Ashka Kubavat
Kumara Vidanalage Navoda Dharani Kumarasinghe
Gopal Lama
Lucia Lazzereschi
Rajia Liaqat
King Lun Liu
Priscilla Wen Xian Loh
Husnara M
Varuna Mallya
Megehadipa Mandal
Laura Mandel
Saloni Mantri
Marvin Masalunga
Suzann Mary Mathew
Catherine Matthew
Shilpa Mishra
Ammar Abitalib Modiwala
Sarah Adel Loutfi Mohamadein
Tahmineh Mollasharifi
Santosh Kumar Mondal
John Mulligan
Aishwarya Murthy P
Hajani Nithianantharajah
Amede Ogechi Nnorom
Faiza Nusrat
Saw Myat Nwe
Omobolade Olajumoke Obadofin
Eoghan O'Connor
Sonali Poonia

Dr Lakshmi Pradeep
Archana Pramod
Aya Qteish
Babak Rahimi Rastgoo
Bindu Rajkumar
Arthi Ranganathan
Meethu Rappai
Vibha Ravikumar
Jose Louie Remotigue
Natalie Robertson
Kariyawasam Bovithanthrige Rojika
Sara Sadiq
Saad Maroof Saeed
Najafzadeh Shiva
Aisha Siala
Admire Sikipa
Ankita Simkhada
Aaron Dean Simpson
Mary Nandini Singh
Ranjita Singh
Anuradha Sistla
Supasan Sripodok
Susannah Staunton
Priyadarsani Subramanian
Dina Sweed
Laura Ling Ying Tan
Sabiha Tasneem
Anupa Alex Terin
Natasha Thomas
Muhammad Umar Ali Khan
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Badrinath Venkatesh
Pragya Verma
Divya Vijayanarasimha
Sachin Vindla
Chaturi Priyanka Weeraratne
Lok Man Wong
Alshifa Yagana
Aysen Yavuz
Aza Yousuf
Ali Zahedi
Nusrat Zahra

Infection

Walter Emeka Alobu
Fahed Shahab Bangash
Gary Bonnici
Callum James Cairncross
Dean Carolan
Kamla Elgizouli
Alexander Farrow
Joshua Hrycaiczuk
Ayesha Irshad
Thomas Juniper
Nishchay Vipan Kakkar
Yusuf Kameshki
Lucy Brodie
Nkechi Perpetua Maduekwe
Rohan Mehra
Muhammad Muddassir
Deepak Venugopalan Pathiyil
Stephanie Rimmer
Katy Skeats
William Snell
Charlie Strachan
Lee Xin Ting
Sylvanus Udoette
Caroline Williams
Martin Zezulka
Marina Zheleva

Medical microbiology & virology

Abeer Khaled Mokhtar Abuelazayem
Ahmed AlQurayn
Sathya Anandam
Rachel Austin-Hutchison
Abdoulie Badjan
Huseyin Bilgin
Tamanna Bordoloi
Joanne Bullivant
Wing Man Chik
Hugo Cruz
Wathudurage Himali Sureshika De Silva
Divyaa Elangovan
Sadiya Fatima
Sarah Firdous

Wing Yu Fung
Hannah Charlotte Howson-Wells
Irim Iftikhar
Malini Jagannatha Rao
Imogen Johnston-Menzies
Fatema Juma
Harman Preet Kaur
Maeve Leonard
Gert Johannes Kruger Marais
Admire Simbarashe Murongazvombo
Ahmed Muyidi
Neha Nityadarshini
Opatha Kankanamge Supuni Prathibha Opatha
Sneka Palanisamy
Padmaja Panjarathinam
Suriya Mudalige Dinithi Purnima
Ioana Raducanu
Yusra Shafquat
Mené van der Westhuyzen
Wai Ching Wong

Molecular pathology

Lauren Kettle
Madhavi Maddali
Amy Newman
Amy Elizabeth Roe
Christopher Watt

Reproductive science

Zoe Barnikel
Katie Boothby
Lorraine Frew
Chin Tyan Guan
Rebecca Louise Lopes Bento
Amy Mitchell
Yulia Shtyrya
Qamar Walayat

Transfusion science

Fergus Guilfoyle

Veterinary pathology

Christopher Poulos
Edward Joshua Timothy Fullick

Successful candidates for the Part 2 Examination

The following candidates have passed all components of the relevant Part 2 examination:

Clinical biochemistry

Gawri Prabhashika Nandasena Abeynayake
Mohamed Ahmed
Wiaam Al-Hasani
Katie Allen
Kofi Antwi
Suzanne Armitage
Thanuja Udeshani Athapaththu
John Bassett
Rebecca Batchelor
Stuart James Bennett
Katherine Jane Birch
Alison Bransfield
Lauren Carroll
Rabia Chaudhry
Natasha Colman
Ryan Cooper
Rosalind Cornford
Fiona Davidson
Pooja Dhiman
Alan Dodd
Joanne Duffy
Amy Dunne
Rebecca Edwards
Erin Clare Emmett
Oluwayemisi Esan
Jon Flowerday
Kirsty Flowerday
Christopher Gay
Lea Ghataore
Kirsten Grant

Claire Gilbertson
Neil Daniel Gilmore
Lakmini Ginige
Katie Hadfield
Saliha Mohammed Ismail Haji
Laura Hancox
Sava Handjiev
Sally Hanton
Charlotte Harborow
Katy Jane Heaney
Karen Mary Heverin
Rebecca Hopkins
Christopher Hughes
Jumana Hussain
Anjly Jain
Jayagandan Jayamani
Clare Jeffray
Erica Jennison
Jessica Johnson
Rebecca Jones
Lucille Kavanagh-Wright
Rebecca Kift
Samantha King
Kia Langford-Smith
Michael Lau
Lanka Nishanthi Liyanage
Nathan Lorde
Gregory Lynch
Amro Maarouf
Amy Mallorie
David Marshall
Tina Mazaheri
Eamon McCarron
Francesca Meakin
Gavin Mercer-Smith
Ewen Millar
Robert Moore
Thomas Glyn Morris
Sampath Mudunkotuwa
Natalie Mullee
Emma Murray
James Osborne
Nesali Pamuditha Panapitiya
James Pethick
Cassandra Nash nee Porchetta

Naomi Jane Rankin
Kate Rice-Davies
Ellen Ridler
Anna Robson
Simon Salter
Prabha Sanjeewani
B Sathya
Sam Sheerin
Jennifer Simpson
Heather Stoddart
Harvey Stringer
Krithika Subramaniam
Carl Talbot
Rania Tawfik
Joseph Taylor
Alessandra Tetucci
Rebecca Tibbs
Victoria Treasure
Catherine Treslove
Nick Unsworth
Natalie Vaughan
Julia Walsh
Wanninayake M S S K Wanninayake
Samuel Waterman
Aruni Kanchana Wijesinghe
Ralph Wigley
Ffion Wood
Man Kwan Yip

Genetics

Dawn O'Sullivan

Haematology

Esraa Abu-Rashed
Sultan Ahmed
Dona Navodi Wasana Amarasinghe
Chithrangani Lasantha Batugedara
Jeyanthy Bavanthan
Ipek Megan Baymul
Anuradha Bhide
Emily Booth
Sarah Borg Savona
Derek Chan

Tsz Long Cheung
Lip Leong Chong
Claire Comerford
Francesca Crolla
Elissa Kaur Dhillon
Elizabeth Farnworth
Alice Feast
Helen Fogarty
Christopher Fox
Thivanshi Chandrachapa Gamage
Gayathri Gamage
Godellawaththa Arachchige Chamani Gamakaranage
Anjalee Nimasha Hettiarachchi
Lara Howells
Shahid Iqbal
Pradeepa Kankanamge
Kunaal Kaushik
Anu Korula
Giao Le
Xiu Hue Lee
Michael Lim
Graham McIlroy
Mahmoud Saad Mostafa Aly Meleha
Nasir Mir
Amany Ihab Alsayed Mohamed
Ghulam Murtaza
Lorna Neill
Krushika Paleja
Matthew Powell
Catherine Prodger
Jennifer Ryan
Mayoorathy Sachchithananthan
Hassan Shabbir
Laith Tafesh
Symeon Theocharidis
Shane Toolan
Margarita Constantina Triantafillou
Katherine Wickenden
Vivian Ka Pik Yeung
Eitan Mirvis

Haematology clinical science

Jennifer Louise Stevens

Histocompatibility and immunogenetics

Katy Derbyshire
Eva Santos-Nunez

Histopathology

Azza Abdelsatir
Maryem Zekri Ali Abida
Manal Ahmed
Zainab Al-dubbaisi
Sarah Abdulkareem Ali Al-dujaili
Deepthi Sarah Alex
Engy Samir Mohamed Abdei Moneim Al-Hariry
Sora Ali Hasan Alhzamat
Zafar Ali
Tayyaba Ali
Aeshah Al-Mareoani
Fatma Nabil Al-Rabiy
Shahd Adheed Al-Saigh
Muntasser Alsharabati
Himabindu Arisetty
Divya Arora
Amna Babar
Betcy Mary Babu
Sehar Bashir
Saima Batool
Debashish Bhattacharjee
Praveen B K
Benjamin Robert Challoner
Elisabeth Chambers
Patrick Chong
Diya Das
Wajira Dassanayake
Wadu Mestri Achala Sudammi De Silva
Fanny Desai
Rakeshkumar Dhadhal
Yasin Dhonye
Gowri Manohari Doss
John Drake
Justine Durno
Isioma Uzoamaka Egbuniwe
Ala Elidrisi
Amira Elwy
Mohammed Saeed Shareef Fadhil Fadhil

Arooj Fatima
Bazia Fatima
Hayleigh Flake
Nitin Gadgil
Shathieka Bhakthini Kankanam Gamage
Jayapriya Gangadharan
Elinor Megan George
Anusha Prabhamalie Ginige
Apoorv Giri
Vijayalakshmi Gudivada
Sakar Hayder
Donato Iacovazzo
Riham Ahmed Ibrahim
Shenbagam J.M.
Supriya Jain
Nagalakshmi Jegannathan
Craig Johnstone
Neethu Joseph
Vidya Kalla
Shabnam Karangadan
Zahra Kasaei Koopaei
Kalpana Kumari Kasturi Muddhureddyhali
Anna Keogh
Sarah Khan
Puja Khanna
Yee Mon Khin
Sruthi Mayura Kozhinjampara Thiruvengatam
Suganthi Krishnamurthy
Nicholas Kruseman Aretz
Kalpana Kumari
Ping Hei Lam
Harshani Amali Albert Lankappuli Arachchige
Hung Wai Li
Fabrice Ly
Bindhu M R
Nidhi Mahajan
Victoria Malone
Jayasree Maniyelil Govindankutty
Rizni Mansoor
Tilka Mathew
Katherine Moor
Anna Moore
Megha Murali
Khaled Abdelfattah Murshed
Aparna Narasimha

Roshni P.S
Mayur Parkhi
Rakesh Patkar
Bharat Potturu
Kavipriya Rajendran
Sharmilla Devi Rajkumar
Rakhee Ramachandran
Martin Reynolds
Firdos Saba
Sahil Ajit Saraf
Piyabi Sarkar
Taha Cumhan Savli
Zubeda Subhani Sayyed
Jigar Shah
Nafeesa Banu Shajahan
Shegufta Sharmin
Indira Shastry K
Alex Shavick
Neha Singh
Aswathy Poliyadath Sivaram
Vindu Srivastava
Supasakthi Sundaraswamy
Harshavardhini Suthanthira Ganesan
Abdul Rahman Syed
Anu T R
Sana Tabish
Alfonso Tan Garcia
Atisha Tank
Hassan Tariq
Nese Tekman
Hetti Gamage Dinusha Thilini
Lisa Thompson
Vishakha Tikeykar
Sonali Timaniya
Michael Salah Shawky Toss
William Tracey
Kanchan Dilip Trichal
Po Man Tsang
Anna Uzzell
Maithreyee Vipulananthan
Craig Wakefield
Kudakumarage Chamini Hasitha Weerasuriya
Lahiruni Dunya Wickramasinghe
Sujata Yadav
Muhammad Zubair

Immunology

Nafsika Sismanoglou

Medical microbiology

Dinesh Aggarwal
Ammara Asif
Tatiana Bovill Rose
Henrietta Bristowe
Saunda Hannadige Chamari Kaushalya De Silva
Anne-Marie Dolan
Chinagozi Edwin
Munasingha Nanayakkarage Tharanganee Dineeka Gunaratne
Uchechika Anuri Nathalie Iroegbu
Durdana Parveen Jamal Khan
Christopher Robert Jones
Louise Kelly
Kevin Lewis
Tin Long Lui
Rebecca McHugh
Andrew Nicolson
Penelope Sellers
Eleanor Singer
Dominic William Sparkes
Natasa Utjesanovic
Dominic Adam Worku

Neuropathology

Shrijeet Chakraborti

Oral pathology

Laura Lee Elsie Whitehouse

Reproductive science

Laura Mason

Transfusion science

Samantha Reynolds

Virology

Andrew James Bosworth
Balram Rathish
Laila Sayeed

Successful candidates for the Certificate Examinations

The following candidates have passed the Certificate in Higher Autopsy Training:

Emmy Kosonam Abu
Mufuliat Adeola Adesanya
Jack Martin Bradley
Lucy Darwin
Vanessa Elsie Lako Djabatey
Felicity Sarah Elwin
Leanne Gale
Caroline Hannigan
Michaela Larkin
Ming Han Lim
Laura Zowie Lu
Amina Chahrazed Mokhtari
Adenike Okunade
Craig Wakefield

The following candidates have passed the Certificate in Higher Cervical Cytology Training:

Chris Bell
Rashmi Chandrashekara Reddy
Edwin Jun Chen Chew
Mate Deak
Supriya Dhar
Yee Yen Gwee
Daniel Ong
Sathiya Devi P G
Lavisha S Punjabi

Anisah Lina Soobraty
Alfonso Tan Garcia
Keima Vallely

The following candidates have passed the Combined Infection Certificate Examination:

Peter Andrew Crook
Charlotte Si Yuan Lim
Nikolaos Moussas
Thomas Sammut
David Smith
Luke Robert Swithenbank
Junko Takata
Marc Woodman

The following candidates have passed the Allergy and Clinical Immunology Certificate Examination:

Neha Shaileshbhai Christian

The following candidates have passed the Diploma in Dermatopathology Examination:

Somaia Elsheikh
Kristofer Holte
Sarah McDonald
Chara Ntala

Return to January 2025 Bulletin

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

Condolences January 2025

Published: 15 January 2025

The deaths of the following Fellows were announced at the 13 November 2024 Council meeting. We extend our condolences to those who grieve for them.

- Bernard William Codling, Stroud, UK
- John Philip Gerard Dowling, Australia

Return to January 2025 Bulletin

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

Consultants: new appointment offers January 2025

Published: 15 January 2025 **Read time:** 2 Mins

The following appointments have been offered and are subject to acceptance by the applicants. The lists are prepared by the College's Workforce team, on the basis of returns completed by College assessors on consultant advisory appointment committees (AACs), submitted by Tuesday 17 December 2025.

Please note, we receive no return following 20% of AACs. Any forms received after Tuesday 17 December 2025 will be published in the next issue. If you do not take up your post or have additional information, please inform the Workforce team. Whenever you move home or job, please inform the Membership team.

Chemical pathology appointments

Region	Employing body	Base hospital	Appointee
Northern Ireland	Western Health & Social Care	Altnagelvin	Dr Giles Aldworth

Haematology appointments

Region	Employing body	Base hospital	Appointee
East of England	West Hertfordshire Teaching Hospitals	Watford General	Dr Anna Tarnakina

Cellular pathology appointments

Region	Employing body	Base hospital	Appointee
South London	St. George's University Hospitals	St. George's	Dr Louis Flood Dr Chara Ntala
Yorkshire and the Humber	Mid Yorkshire	Dewsbury	Dr Amina C Mokhtari

Immunology appointments

Region	Employing body	Base hospital	Appointee
North West	Liverpool University Hospitals	Across sites	Dr Hadeil Morsi

Medical microbiology, infection and virology appointments

Region	Employing body	Base hospital	Appointee
East of England	West Suffolk	West Suffolk	Dr Rachel G Bousfield
North West	Liverpool University Hospitals	Liverpool Clinical Laboratories	Dr Hugh Adler
South London	St George's University Hospital	St George's	Dr Claire Mullender

Return to January 2025 Bulletin

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

Book review – Diagnostic Pathology: Molecular Oncology, Third Edition

By Mohammad A. Vasef and Aaron Auerbach, Elsevier, 2024, 1048pp, £279.99, 978-0443-11220-1

Published: 15 January 2025 **Author:** Heather Keir **Read time:** 3 Mins

The third edition of *Diagnostic Pathology: Molecular Oncology* by Mohammad A. Vasef and Aaron Auerbach is a valuable updated guide for histopathologists working in molecular oncology, where genetic and molecular profiling now play critical roles in diagnostics, prognosis and therapy. With a focus on bridging molecular insights with histopathological practice, this edition continues the *Diagnostic Pathology* series' tradition of clarity and utility, providing a carefully organised resource for quick and effective access to information on diseases, mutations and therapeutic targets.

Each chapter is structured to support the reader in creating integrated reports that link genotype with phenotype, presenting clinically relevant insights for accurate diagnoses. The extensive, high-quality images further enhance understanding by illustrating both morphological and molecular features. This alignment of visual and textual information assists histopathologists in drawing precise connections between mutations and pathology, which is indispensable in diagnostic practice.

One of the edition's standout features is its emphasis on the practical application of molecular data in clinical settings, with chapters organised by organ system and specific tumour type. Each section includes updates on crucial mutations and biomarkers, such as EGFR and KRAS for lung and colorectal cancers, along with PD-L1 and microsatellite instability, all of which are central to personalised medicine. This focus is particularly relevant for UK histopathologists, who are increasingly involved in multidisciplinary discussions on targeted treatments. Their work supports the NHS' Genomic Medicine Service initiatives in which the NHS aims to utilise the power of genomic technology and science to improve population health and deliver on the commitments set out in the NHS Long Term Plan.

Key updates include expanded sections on next-generation sequencing (NGS) and liquid biopsy techniques, now prominent as minimally invasive tools in oncology. The authors skilfully address challenges of NGS interpretation, such as differentiating actionable mutations from incidental findings, something that can be complex for those new to molecular pathology. The book's accessible approach to bioinformatics and variant analysis makes it a valuable resource, even for those less familiar with advanced molecular techniques.

Additionally, the authors have incorporated recent classifications and guidelines, including the fifth edition of the WHO Classification of Haematolymphoid Tumours and the 2022 International Consensus Classification (ICC), ensuring the text remains current with international standards and valuable to all. The book's discussion of new immuno-oncology markers, such as PD-L1 and microsatellite instability, reflects ongoing advancements in immunotherapy, which is increasingly incorporated into cancer treatment protocols.

While the book is comprehensive, some readers may find the depth of molecular biology challenging, particularly if they are less familiar with advanced techniques. Vasef and Auerbach have skilfully simplified complex topics, yet the text assumes a foundational knowledge of molecular genetics. Although the introductory section on core molecular pathology and techniques is helpful, a basic understanding is still necessary, which may somewhat limit accessibility for those newer to the field. In addition, as with many specialised medical textbooks, the cost may be prohibitive for certain readers, especially students or practitioners in resource-constrained settings.

In my opinion, the third edition of *Diagnostic Pathology: Molecular Oncology* is an incredibly useful resource for histopathologists keeping pace with molecular advancements. By combining depth with an accessible format, it meets the needs of both experienced pathologists and newcomers to molecular diagnostics. I believe this latest edition has all the ingredients to become a staple text on the bookshelves of histopathologists and has the potential to enhance diagnostic precision and ultimately improve patient outcomes in the rapidly advancing world of molecular oncologic pathology.

Meet the author

HEATHER KEIR

CONSULTANT PAEDIATRIC & PERINATAL PATHOLOGIST, CLINICAL LEAD FOR PAEDIATRIC HISTOPATHOLOGY, ROYAL MANCHESTER CHILDREN'S HOSPITAL

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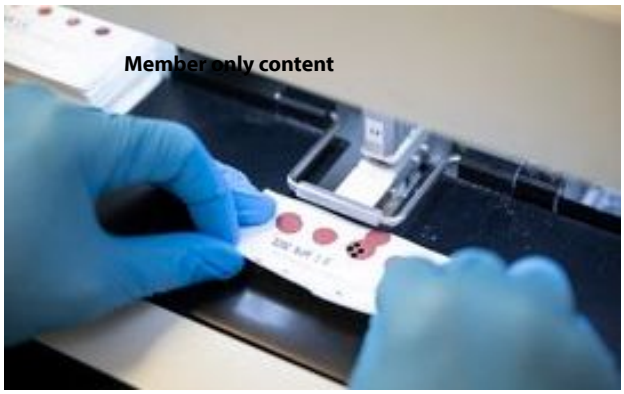
Read next

Challenges in paediatric infection practice

15 JANUARY 2025



Innovation in paediatric and perinatal pathology

15 JANUARY 2025

Current advances and issues in the diagnosis and management of primary immune deficiencies in children

15 JANUARY 2025

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

RCPath Cameron Lecture 2024

This year's Cameron Lecture explored haemoglobinopathies.

Published: 15 January 2025 **Author:** Josephine McCullagh and Dr Shubha Allard **Read time:** 2 Mins

The prestigious lecture named in honour of the College's founder was delivered by Dr Farrukh Shah MBE at the Advances in Transfusion Medicine Symposium. Dr Shah spoke about the management of haemoglobinopathies, novel treatment developments and the challenges of implementing research into therapies.

The biennial Advances in Transfusion Symposium was held in November 2024, in partnership between the College and the UK Serious Hazards of Transfusion (SHOT) haemovigilance scheme, over 2 half days as a virtual event. Dr Bernie Croal, College President, gave the opening welcome, with ~400 delegates from 30 countries participating each day.

Dr Farrukh Shah MBE delivered the prestigious Cameron Lecture on the second day of the symposium. The lecture focused on advances in the management of haemoglobinopathies, within a session on transfusion safety that was chaired by Vivienne Parry OBE and Dr Subarna Chakravorty.

Sir Roy Cameron was the founding President of the College of Pathologists. The College established the Cameron Lecture in his honour soon after its foundation. The lecture may be given on any pathology speciality and was first given in 1965 by Professor C.L. Oakley on medical microbiology. The Cameron Lecture is part of a series of named College lectures.

Dr Shah's lecture explored the current standards of care, curative therapies such as bone marrow transplantation and gene therapy, and emerging treatment options, reviewing the current evidence available from clinical trials.

Dr Shah highlighted transformative developments, including gene-editing technologies like CRISPR-Cas9 and lentiviral gene therapy, which have shown promising results in achieving transfusion independence and reducing disease complications. Additionally, novel therapeutics targeting erythropoiesis, iron metabolism and haemoglobin stabilisation, such as Mitapivat and Luspatercept, offer new hope for patients.

Challenges remain in translating research into widely available therapies; global access to innovative treatments is limited. However, Dr Shah emphasised the potential of these advancements to usher in an era of curative and disease-modifying therapies, significantly improving outcomes for patients with haemoglobinopathies worldwide.

A recording of Dr Shah's lecture, together with her biography, is available on the College website.

The proceedings of the Advances in Transfusion Medicine Symposium covering the other key talks given will be published in a future Bulletin issue.

Meet the authors

DR SHUBHA ALLARD

CONSULTANT HAEMATOLOGIST, NHS BLOOD AND TRANSPLANT

DR JOSEPHINE MCCULLAGH

CONSULTANT CLINICAL SCIENTIST, BARTS HEALTH NHS TRUST AND NHSBT

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Read next

Current advances and issues in the diagnosis and management of primary

New developments in childhood vaccination and immunisation in

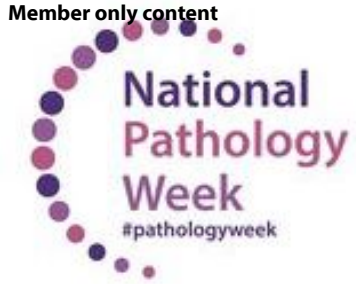
immune deficiencies in children

15 JANUARY 2025

England

15 JANUARY 2025

Member only content



National Pathology Week 2024 – highlighting pathology is vital

15 JANUARY 2025

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

2025 John Dacie Lecture, by Professor Andreas Greinacher

Read about the upcoming John Dacie Lecture.

Published: 15 January 2025 **Author: Sue Pavord** **Read time: 3 Mins**

In April, the John Dacie Lecture, hosted jointly by the College and the British Society for Haematology, will be delivered by Professor Andreas Greinacher.

The Royal College of Pathologists and the British Society for Haematology (BSH) are delighted to announce their joint session for the BSH Annual Scientific Meeting, which will be held in Glasgow on 27–29 April 2025.

The annual John Dacie Lecture will take place on Tuesday 29 April 2025 at 13.30, in honour of Sir John Vivian Dacie (1912–2005). JV, as he was respectfully and affectionately known, is considered the forefather of laboratory haematology. His research and education in critical assessment of laboratory data to obtain diagnoses and solve complex clinical problems contributed significantly to our understanding of the pathophysiology of blood.

A fitting candidate for this year's lecturer is Professor Andreas Greinacher of Universitätsmedizin Greifswald in Germany. Through development of techniques in laboratory investigation, Professor Greinacher has made significant scientific breakthroughs and lifesaving advances. These include identifying the genetic basis of the human neutrophil antigen 3a (HNA-3a) antigen responsible for transfusion-related acute lung injury (TRALI), pioneering an immune-based treatment for hemolytic uremic syndrome during the *E. coli* outbreak of 2011, and advancing the understanding of platelet factor 4 immunothrombotic disorders.

It is the latter topic that Professor Greinacher will be talking about. He will discuss how developments in laboratory technique have enabled the understanding, diagnosis and management of vaccine-induced immune thrombocytopenia and thrombosis during the COVID-19 pandemic and how this field has progressed since then.

Meet the author

DR SUE PAVORD

PRESIDENT OF THE BRITISH SOCIETY FOR HAEMATOLOGY

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Read next

RCPath Cameron Lecture 2024

15 JANUARY 2025

The William Tong Prize 2024 – Unveiling the unknown: metagenomics to diagnose unexpected causes of encephalitis

15 JANUARY 2025

Current advances and issues in the diagnosis and management of primary

The Royal College of Pathologists
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CPD-accredited events January–March 2025

Find out details of events that have been accredited for CPD by the College.

Published: 13 January 2025 **Author: CPD team** **Read time: 2 Mins**

Our full programme of continuing professional development (CPD) events can be found on the members' website.

RCPath CPD-accredited online resources can be found here.

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A Chronic Lymphocytic Leukaemia (CLL) refresher with gems from ASH24

Date: 20 January 2025

Location: online

CPD credits: 6

Book for the Chronic Lymphocytic Leukaemia refresher

Post American Society of Haematology (ASH) Significant Highlights

Date: 21 and 22 January 2025

Location: Royal College of Physicians, 11 St Andrews Place, London NW1 4LE

Book for the Post American Society of Haematology (ASH) Significant Highlights

Journal Club webinar – It's in the water? Addressing risks from healthcare water systems

Date: 22 January 2025

Location: Online

CPD credits: 1

Book for the Journal Club webinar

Haematological Malignancy Diagnostic Service Course

Dates: 23 and 24 January 2025

Location: King's College Hospital, Denmark Hill, London, SE5 9RS

Book for the Haematological Malignancy Diagnostic Service Course

A Chronic Lymphocytic Leukaemia (CLL) refresher with gems from ASH24

Date: 27 January 2025

Location: Online

CPD credits: 6

Book for A Chronic Lymphocytic Leukaemia (CLL) refresher

Antimicrobial resistance (AMR) in Focus: What's new in therapeutics

Date: 27 January 2025

Location: Online

Book for Antimicrobial resistance (AMR) in Focus

Post American Society of Haematology (ASH) Highlights for Scotland - What’s New in Haematological Malignancies

Date: 29 January 2025

Location: *DoubleTree by Hilton Dunblane, Perth Road, Dunblane FK15 0HG*

Book for the Post American Society of Haematology (ASH) Highlights for Scotland

Topics in Infection: 50 years in Clinical Infection

Date: 31 January 2025

Location: Royal College of Nursing, 20 Cavendish Square, London W1G 0RN

CPD credits: 7

Book for Topics in Infection: 50 years in Clinical Infection

Genomics and Clinical Microbiology course

Dates: 2–7 February 2025

Location: Wellcome Genome Campus, Hinxton

CPD credits: 42

Book for the Genomics and Clinical Microbiology course

Leeds Lymphoma Course

Dates: 03–05 February 2025

Location: Online

CPD credits: 11

Book for the Leeds Lymphoma Course

The British Society for Antimicrobial Chemotherapy (BSAC) & The Global Antibiotic Research & Development Partnership (GARDP) Antimicrobial Chemotherapy Conference (ACC2025)

Dates: 04–05 February 2025

Location: Online

CPD credits: 8

Book for the Antimicrobial Chemotherapy Conference

South West Lymphoma Group

Dates: 05 February 2025

Location: The Castle Hotel, Castle Green, Taunton, Somerset TA1 1NF

Book for the South West Lymphoma Group

10–11 February 2025

Dates: 10–11 February 2025

Location: The Hodgkin Bldg Guys, London SE1 1UL, UK

Book for the London Endocrine Pathology Update

Post International Society of Thrombosis and Haemostasis (ISTH) & American Society of Haematology (ASH) Headlines

Dates: 11 February 2025

Location: The Liner Hotel at Liverpool, Lord Nelson Street, Liverpool L3 5QB

Book for the Post International Society of Thrombosis and Haemostasis (ISTH) & American Society of H

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

College conferences January–March 2025

We provide a range of educational opportunities across the breadth of pathology. Discover more about the conferences we offer.

Published: 13 January 2025 **Author: The Events team** **Read time: 2 Mins**

To see all 2025 conferences visit our website.

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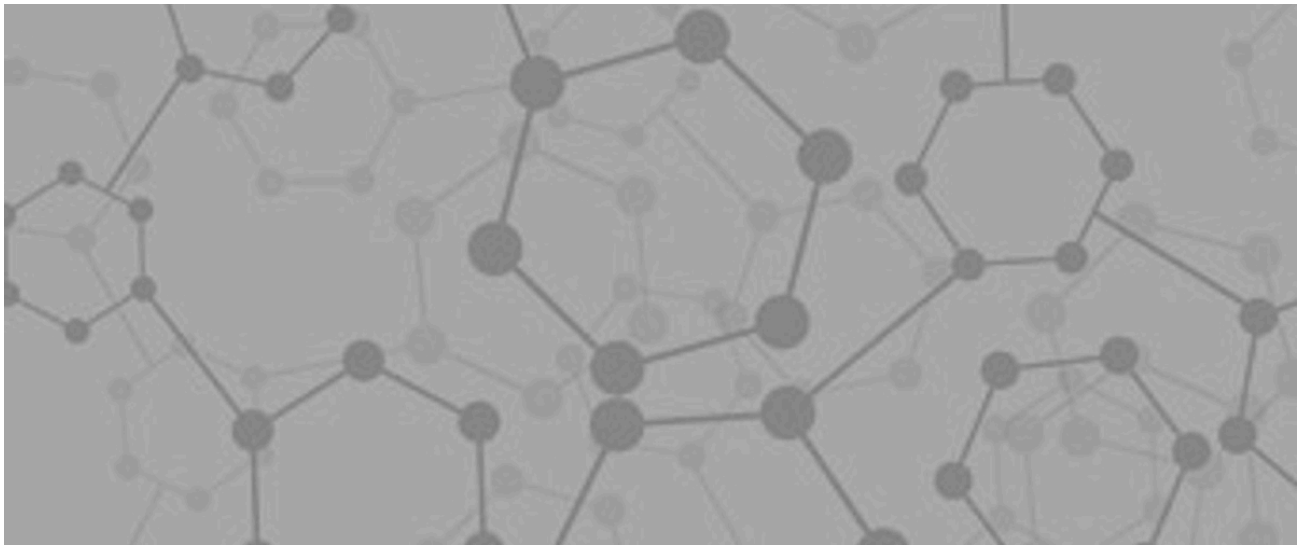


21 January 2025

1 CPD Credit

In recent years, novel synthetic opioids (NSOs) have been detected in drug seizures and in biological samples in the United Kingdom. These compounds are highly potent, and so keeping current with which compounds are in circulation in the illicit drug market in the UK, and how best to detect them in a range of samples is important to inform public health decisions, and to

minimise the risk of false negative analyses. This webinar will discuss the analytical considerations for maximising detection of a range of these compounds, including how to attempt to keep ahead of newly-emerging analogues.

22 January 2025

1 CPD Credit

This event will take place at 12:30pm and last approximately 1 hour.

5 February 2025

1 CPD Credit

The talk will involve canine and feline case presentations of various pathologic processes of the respiratory system and thorax, with real-time viewing of digital slides via screen-sharing. Samples studied may include respiratory washes, thoracic effusions and FNAs of solid masses of the nasal

passages, lungs and mediastinum. The talk is aimed at residents training in clinical pathology, medicine and oncology. Residents training in anatomic pathology and veterinary practitioners with an interest in cytology may also find it relevant.

5 February 2025

1 CPD Credit

We are delivering a free 4-part webinar series exploring 'Gross Examination and Frozen Sections'. This series will provide pathologists from around the world with skills to utilise outside of the laboratory to help facilitate progress in an academic career. Each webinar will have an international speakers delivering presentation followed by a Q&A session. This webinar is part 1 of this series and will be focusing on head and neck pathology and oncology surgery specimens.

12 February 2025

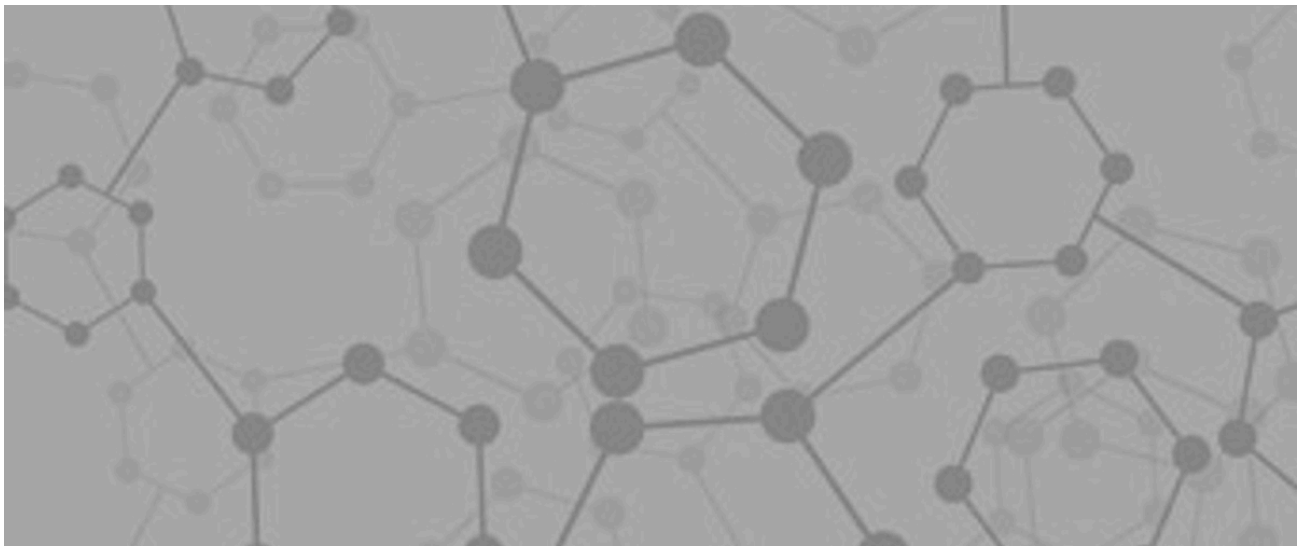
1 CPD Credit

This event will take place at 1:00pm and last approximately 1 hour.

12 February 2025

1 CPD Credit

We are delivering a free 4-part webinar series exploring 'Gross Examination and Frozen Sections'. This series will provide pathologists from around the world with skills to utilise outside of the laboratory to help facilitate progress in an academic career. Each webinar will have an international speakers delivering presentation followed by a Q&A session. This webinar is part 2 of this series and will be focusing on breast pathology and oncology surgery specimens.



19 February 2025

1 CPD Credit

We are delivering a free 4-part webinar series exploring 'Gross Examination and Frozen Sections'. This series will provide pathologists from around the world with skills to utilise outside of the laboratory to help facilitate progress in an academic career. Each webinar will have an international speakers delivering presentation followed by a Q&A session. This webinar is part 3 of this series and will be focusing on gynecological pathology and oncology specimens.

26 February 2025

1 CPD Credit

We are delivering a free 4-part webinar series exploring 'Gross Examination and Frozen Sections'. This series will provide pathologists from around the world with skills to utilise outside of the laboratory to help facilitate progress in an academic career. Each webinar will have an international speakers delivering presentation followed by a Q&A session. This webinar is part 4 and the final one of this series and will be focusing on colorectal carcinoma specimens.

28 February 2025

This free event is particularly aimed at histopathology doctors who are looking to make a Portfolio Pathway application to the GMC, and any individuals who are supporting them in their application (e.g. trainers).

4 March 2025

6 CPD Credits

A Medical Examiner system is being rolled out across England, Wales and Northern Ireland to improve the process of death certification, particularly for the bereaved. The Royal College of Pathologists is leading on the training of Medical Examiners (MEs) and has recently agreed to provide training for Medical Examiner Officers (MEOs) as well. These training days are open to anyone who has been appointed to, or is considering applying to, work as an MEO.

19 March 2025

1 CPD Credit

This talk will address how to use the 'surgical sieve' approach when performing a post-mortem examination on a body recovered from water. Topics such as how the body came to be in the water, what occurred in the water and how one can establish pathological features of drowning will be covered.

25 March 2025

6 CPD Credits

Medical Examiner Training is aimed at senior doctors who wish to apply for, or have already been appointed to, the role of medical examiner in England, Wales, Northern Ireland, and Gibraltar. Eligibility criteria and employment models are determined locally in England and by NHS Shared Services Partnership in Wales. The College does not make medical examiner appointments and completing the training does not entitle you to employment in this role. Only medically qualified applicants are eligible to apply for membership of the College via the RCPathME route.

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

Join the Lab Tests Online-UK editorial team

Become a volunteer reviewer with Lab Tests Online UK

Published: 17 October 2024 **Read time:** 1 Min

Join the Lab Tests Online-UK editorial team

Become a volunteer reviewer with Lab Tests Online-UK and:

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- gain editorial skills working on an exciting digital publishing project
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This continuing professional development (CPD) activity is an excellent way to develop new specialist skillsets and reach a broad audience with your knowledge of the latest best practices.

If you're interested in getting involved with Lab Tests Online UK, please contact labtestsonlineuk@labmed.org.uk.

Deputy managing editor(s) for Lab Tests Online UK

We have an exciting new opportunity for you to develop varied skills while you contribute towards educating and empowering patients.

We're looking for deputy managing editors to join the Lab Tests Online UK board and assist our managing editor in ensuring that the website's content meets the needs of its audience. With support, you'll be helping to oversee and refine content review processes, check edited content and seek patient feedback to keep content responsive and effective.

You don't need prior editorial experience, although we are looking for:

- members of LabMed, the Institute of Biomedical Science (IBMS) or RCPath
- Health and Care Professions Council (HCPC) registration and band 8c or above for biomedical scientists
- full FRCPath for clinical scientists and chemical pathologists.

If you're interested in the role and meet the above requirements, we'd love to hear from you. Please send your CV to sahana@labmed.org.uk.

Return to January 2025 Bulletin

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

Legacies

Published: 17 October 2024 **Author: Daniel Ross** **Read time: 3 Mins**

The objectives of the College are to develop and maintain high standards of pathology education, training and research; promote excellence and advance knowledge in pathology practice; increase the College's influence through a clear, coherent, professional voice; and resource the future of the College. Financially, the College aims to match activities to projected income. The College is funded from subscriptions, examinations and related fees, investment income, grants from outside bodies and charitable donations.

Bequests or legacies are always gratefully received. Leaving a gift to charity in your will is a very special way of helping to secure the future for organisations such as the Royal College of Pathologists. Legacies to the College have the added benefit of being exempt from inheritance tax.

An open legacy may be made toward the general purposes of the College. This is preferred because it allows the College to apply the funds donated where the need is greatest at the time the legacy eventually becomes available. This can be quite different from the perceived need when a will is made. However, you may legally oblige the College to spend the money in a particular area of College work or for a specific purpose by making a restricted legacy.

The College undertakes many educational initiatives. We are actively undertaking an outreach programme that spreads the awareness of pathology throughout the UK and abroad. No other UK college has committed so much time and resources to the future of our profession. This will promote the importance of pathology to the grassroots of this country through schools, colleges, hospitals and many other sites where the general public can have access to important healthcare information.

If we are to safeguard the future of our profession in the face of increasing competition from other medical and science career opportunities, it is vital that we commit ourselves to the promotion and awareness of pathology, and continue to train our young professionals to the very highest standards. This public engagement programme will require financial support from the College for years to come and we hope very much that we can build on the tremendous

support you have already given and ask if you would consider leaving a legacy. Additions to your existing will can be made using a 'Form of codicil', available on our website. Alternatively, please write to us and we will be happy to post you a copy. Please note that witnesses should be present when you sign the form, but it should not be witnessed by a College member or the spouse of a College member. We recommend consulting a solicitor or qualified will writer before making a will; they should give you all the legal and tax advice that you require.

If you are considering including a legacy to the College in your will, we would very much appreciate being informed of your generous act. To inform us of your bequest or for specific advice on legacies to the College, please contact me Daniel Ross Chief Executive (daniel.ross@rcpath.org).

Author

DANIEL ROSS
CHIEF EXECUTIVE

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