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of the Royal College of Pathologists

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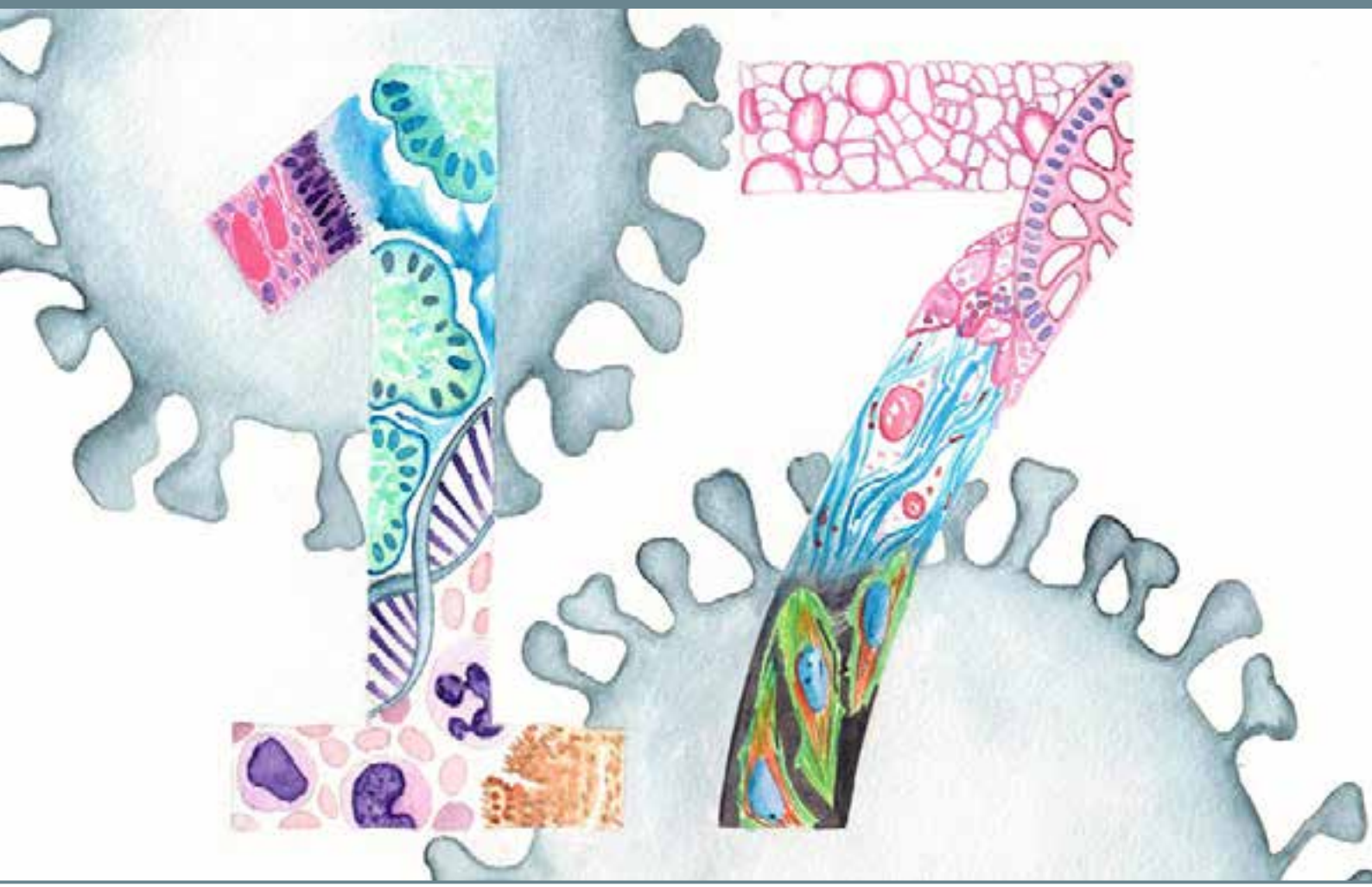

In this issue: Celebrating our Diamond Jubilee – Pathologists in profile

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

Pathology: at the heart of your health
Celebrating our Diamond Jubilee

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

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On the cover: Pathology – a diverse subject by Charlotte Mercer. Charlotte's Art of Pathology entry won second place in the Over 18 category.

EDITORIALS

From the Editor

Dr Shubha Allard

Welcome to the January 2022 *Bulletin* as we emerge from yet another extraordinary year culminating in the second muted festive season in a row. The uncertain and evolving COVID landscape continues to make a significant impact on our professional and family lives. I am, however, certain that we will rise again to any challenges that come our way and dig even deeper into our personal reserves and capacity to adapt.

A particular certainty in 2022 is, of course, the College's Diamond Jubilee and this is our opportunity to recognise and celebrate achievements across all our pathology specialties. I am certainly keen that we do so over the whole year within our four *Bulletin* editions with therefore a somewhat different feel to the standard format.

Our exceptional strength lies in the people across pathology constantly striving in their efforts towards high-quality service delivery and innovation, and yet finding the time to educate and engage others to ensure the next generation of expertise. So, we start off the year highlighting the contributions of just some of these people with profiles of colleagues from either a medical (e.g. Dr Suzy Lishman, and Professors Jo Martin, Cheng-Hock Toh and Sharon Peacock) or scientific (Dr David Wells and Dr Stephen Thomas) background, including consultants and trainees (Dr Matt Clarke). I greatly enjoyed reading all the profiles with some surprising insights into experience and personal journeys that our contributors were willing to share with us. I was particularly touched by Professor Kathreena Kurian's emotive account that may strike a particular chord with the experience of some colleagues.

I am delighted that Elliot Colburn MP agreed to write the introduction to our initial tranche of diverse profiles. He recognises not just individual effort, but also the collective input of all of those working so hard across pathology and the College's role in supporting them. Further investment needs are highlighted for pathology services to continue with their essential function in recovery from COVID-19 and tackling the healthcare backlog.

The Diamond Jubilee year is certainly an appropriate time to look back through the history of the College, from its founding in 1962 with royal patronage and visits. Registrar Dr Lance Sandle and Past President Professor Sir James Underwood help remind us of the College's core mission and its charitable aims (p 552).

It is timely too to focus on maternal deaths and the contribution of pathologists over the past 70 years with Professor Sebastian Lucas and colleagues providing a professional and useful personal overview of experience including confidential enquiries (p 564). Ongoing events, including the experience of mothers affected by COVID, emphasise the need for continued attention on this particular group.

Professor Mark Arends throws the spotlight on a previous Cancer Research UK research workshop and we have profiles from researchers (Dr Daniel Royston and Dr Marnix Jansen) who were part of teams that secured funding for the development of novel technologies in cancer diagnosis.

We will certainly aim to profile further medical and scientific trainees in the April *Bulletin*, together with various initiatives supporting training and educational needs. In this issue, we emphasise the ongoing hard work of the Learning Directorate and relevant working groups who launched seven new curricula in 2021 following four years of development (p 556).

The College has an active Lay Network with at least three trustees and six others supporting core College activities. The College's 2020–2021 annual report includes a review of their contribution. One of the lay advisors Rebecca Mussell contributes to this issue, using her particular expertise to highlight the importance of ethics in medicine with tips on how ethical issues should be identified and approached (p 557).

International Pathology Day 2021 focused on the important topic of digital pathology and artificial intelligence with significant implementation challenges but with scope for collaboration (p 582). We continue with our efforts to share our subject more widely through National Pathology Week (p 571). There were some amazing entries for the Art of Pathology competition, including the cover image selected for this edition because of its emphasis on how our pathology community across the UK and indeed internationally works together. There will be great opportunities to join in with our programme of events and activities (p 569) throughout the College's Diamond Jubilee in 2022, so please do get involved.

I end by wishing you all the best for 2022. I look forward to your articles and contributions celebrating people and achievements within all our pathology specialties throughout the course of the year.

Dr Shubha Allard
Bulletin Editor

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From the President

Professor Mike Osborn

Hello and welcome to the first *Bulletin* of 2022 – our Diamond Jubilee celebrating 60 years of the College. Founded in 1962 to develop and support the evolving specialties of pathology, the College has flourished since then owing to the hard work and professionalism of you, our members. The College continues to champion the role of all our 17 specialties and our members who work to help us deliver and develop excellence in patient care.

Our Diamond Jubilee celebrations

To celebrate this historic milestone we have organised a range of fantastic events throughout the year and all around the UK. From a walk along the Welsh coast and lectures in Scotland and Northern Ireland, to the Melissa Bus in North East England, a Liverpool Philharmonic concert and a Land's End to John O' Groats bike ride, we have many exciting events with something suitable for all members and your friends and family.

On the day of our anniversary, 21 June, we will be hosting a whole day of celebrations at the College. This includes our 2022 Foundation Lecture, which will be given by Professor Sir Jonathan Van-Tam. There will also be pathology-related activities for local school students, and an exhibition of many of our specialties. Given the ongoing COVID issues most of the in-person events are taking place between Easter and Halloween, and we have also arranged online events that will be taking place throughout the year. These include virtual challenges such as runs and walks and the 'President's Pet Photo Competition'. It promises to be a fantastic year-long celebration of pathology that everyone can enjoy. But more than that, it will be a great opportunity to highlight the importance of pathology in patient care and the excellent work that you, our members, undertake for patients, the NHS and other healthcare providers. To do this, we will be inviting and involving policymakers and other stakeholders from all four nations to many of these events. We will use this opportunity to highlight the issues affecting pathology and our members, and the great and vital work you do.

A special thanks must go to Professor Sarah Coupland and the Diamond Jubilee Team who have and continue to work tirelessly to organise these events and, very importantly, to obtain sponsorship and funding from outside the College to finance them. Thank you to all of you and to everyone involved in this great event. There will be more information about the Jubilee and our events in this and other issues of the Bulletin and in my monthly newsletter, as well as on the College website and our social media channels. I encourage everyone to get involved and celebrate your College and profession.

Supporting amendments to the Health and Care Bill

Much has happened since the last *Bulletin* and, as always, we have been busy promoting and supporting pathology and the needs of our members and our patients.

Significant issues around inadequate workforce in pathology and, indeed, in all medical and healthcare specialties remain. It is a problem that I as President and the College as a whole dedicate a huge amount of time and resource to trying to get addressed, since it directly affects all our working lives and the quality of care we can offer our patients. With this in mind, the College joined a coalition of almost 90 organisations supporting an amendment to the Health and Care Bill tabled by former health secretary Jeremy Hunt MP to strengthen workforce planning. Jeremy Hunt tabled this amendment to Clause 34 of the Health and Care Bill, which would require the secretary of state to publish independently verified assessments of current and future workforce numbers every two years consistent with the Office for Budget Responsibility long-term fiscal projections. The bill has now gone to the House of Lords where we hope it will build enough support across all sections of the House to allow for inclusion in the bill. The debate is really important to show the breadth of support in the House for the workforce amendment.

Highlighting workforce issues

In mid-December, I had an extremely productive meeting with my own local MP Ellie Reeves, Shadow Solicitor General for England and Wales. We discussed issues affecting pathologists and the provision of pathology services. We will be working together in the new year to highlight these issues to the wider shadow cabinet and we have a meeting planned with Wes Streeting MP, Shadow Secretary of State for Health and Social Care. Ellie Reeves also plans to raise these issues with the government in Westminster through letters and questions in the Commons. I also have a meeting scheduled with Jeremy Hunt MP, current chair of the Select Committee for Health and Social Care, later this year. We will discuss a variety of topics at this meeting, but the focus will be on workforce.

'No One's Listening': endorsing funding for sickle cell services

The College and the RCPath Transfusion Medicine Specialty Advisory Committee (SAC) responded to

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the All Party Parliamentary Group (APPG) on Sickle Cell and Thalassaemia report No One's Listening following their inquiry into avoidable deaths and failures of care for sickle cell patients. We endorsed the recommendations and welcomed the call for urgent action to ensure sickle cell patients receive care at a standard to which they are entitled. The underfunding of services and inadequate levels of staffing can be a mutually reinforcing problem. As a result of the significant underfunding of sickle cell services, there are far fewer specialised nurses, doctors, psychologists and support staff that have chosen to work within this service than are needed. Individuals with sickle cell deserve care from a multidisciplinary team with specialist knowledge. Improvements to community services and support are equally important to keep patients well and out of hospital. The RCPath Transfusion Medicine SAC hopes to continue to work with the APPG to address concerns around gaps in sickle cell care, with the consensus being that the problem is currently on course to get worse. We feel it is vital that the NHS takes action to address the issues highlighted to improve the care received by all individuals affected by sickle cell.

An update from the four nations

Across all four nations of the UK, the College has been actively pursuing the interests of our members and working to prioritise patient care. Consultation responses on priorities in healthcare strategies have been submitted for Wales and Scotland as well as a response on the Northern Ireland Cancer Strategy with input from the Northern Ireland Regional Council.

Northern Ireland

In Northern Ireland, Dr Gareth McKeeman has been elected to succeed Professor Ken Mills as the new Chair of the Northern Ireland Regional Council from 18 November 2021. Welcome Gareth and thank you for taking on this important role. We were also pleased to see that the Health Minister Robin Swann MLA marked International Pathology Day by stating his commitment to delivering a modern, sustainable, world-class pathology service in Northern Ireland. The Minister said: 'Pathology services are critical to our health service and the dedication and hard work of our regional pathology workforce in Northern Ireland is second to none. I want to show my appreciation for that workforce by delivering a modern, agile and innovative pathology service to be proud of and which is fully equipped to respond to the healthcare needs of our population both now and in the future.' We very much hope to develop our relationship and to work with Robin Swann in the future.

Wales

Dr Jonathan Kell, Chair of the Wales Regional Council, had an excellent meeting with Eluned Morgan MS, Minister for Health and Social Services in Wales, discussing, among other things, workforce, cancer and technology. Eluned Morgan is keen to be involved in the College's Jubilee celebrations, including attending the event in the Senedd. Dr Jonathan Kell will also be speaking on 12 January 2022 at a Westminster Health Forum event on 'Priorities for healthcare in Wales' focusing on post-COVID service recovery, funding, modernisation, workforce, community pharmacy, and forward planning. Vaughan Gething MS, Minster for Economy in Wales, has agreed to sponsor the 60th anniversary event in the Senedd and we are confirming the details and timing of this exciting event.

Scotland

The Scotland Symposium 2021 was held on Friday 8 October and focused on the challenges and opportunities during recovery. The symposium included presentations on recovery, COVID-19 testing in North East Scotland, pathology challenges, blood supply resilience and an RCPath Trainees' report on the impact of COVID-19 on training. I also spoke to delegates, unfortunately only online, highlighting the College's work and activities in Scotland. I very much hope to attend in person this year.

England

We have just heard that there will be a significant investment of £120 million in LIMS/digital pathology in this financial year. We have pressed hard for investment and, while there is still much work to be done to realise the benefits of this investment, and likely more funding required in future, this feels like a signal that pathology informatics is being taken seriously.

In England, there has been the announcement that Health Education England (HEE), NHSX and NHS Digital (NHSD) are merging into NHS England/Improvement (NHSE/I). This is a major and significant reorganisation of these arm's length bodies that will likely lead to a period of disruption within these organisations with an impact on the provision of NHS services and patient care. Hopefully any such disruption will be short-lived and the changes will bring advantages, particularly in terms of the HEE merger, including better inclusion of workforce requirements in NHS financial planning. However, there are also risks particularly in relation to HEE regarding the possible loss of a separate voice for workforce issues and in ensuring training and education budgets are not subsumed and lost into other activities. The possible effect in relation to NHSX and NHSD is less clear, but any advantages must not be at the cost of losing current functionality. The added disruption caused

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by undertaking this merger during the ongoing COVID-19 pandemic is also a worry. To highlight our thoughts and concerns, the College has signed up in support of the Academy of Medical Royal College's statement relating to these mergers.

Our first hybrid Annual General Meeting

In November, we had our Annual General Meeting and our last Council meeting of 2021. These were hybrid events (a first for both) with some members attending in person and others joining online. It was great to see people face to face while the opportunity to join virtually enabled more people to 'attend' and take part. Given the increased ease of attendance with hybrid events, it is likely that this will be the way forward for such College activities even after the pandemic is over. We will of course continue to listen to your feedback on how we deliver such events.

Congratulations and thank yous

Finally, I would like to congratulate everyone who passed their exams and whose results are published in this issue. It is a great achievement and opens the door to a fantastic career and future. As you move forward in your career, please do become involved in your College. There are opportunities for everyone and we are keen for all our members to be involved in College activities – be that at a local or national level. More information on College roles and how to become involved can be found on our website.

I would also like to thank the Exams team for all their hard work in running the exams so successfully. Thank you also to the College's Facilities and Events @ No 6 teams for their help.

Congratulations to the following members and other colleagues who received honours in the Queen's New Year Honours for 2022: Professor Diana Anderson, MBE; Professor Nicholas Lemoine, CBE; Dr Malur Sudhanva, OBE; Professor Sir Jonathan S Nguyen-Van-Tam, Knight Commander of the Order of the Bath; Sir Paul Nurse, Companion of Honour; and Professor Sir Chris Whitty, Knight Commander of the Order of the Bath. I congratulate them on their exemplary work for the benefit of patients, which is even more remarkable for having taken place during the COVID-19 pandemic.

2022 promises to be a great celebratory year for pathology and pathologists. Thank you all for your continuing hard work for your patients and your ongoing support for the College. I look forward to seeing many of you at the various Diamond Jubilee events this year, whether online or in person.

Professor Mike Osborn
President

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Celebrating the work of pathologists for the College's Diamond Jubilee

Elliot Colburn, MP

In this article, Elliot Colburn MP, Conservative MP for Carshalton and Wallington, introduces our 'Pathologists in Profile' and describes his work with the College over the last year.

I was delighted to be invited to contribute to the Bulletin as the College celebrates its Diamond Jubilee. Since meeting Professor Mike Osborn, President of the Royal College of Pathologists, in March 2021 and being introduced to the College, I have been overwhelmed by the amazing work that pathologists and scientists do.

It's been a privilege to be introduced to the many experts in pathology across the 17 specialties. I would like to take this opportunity to thank you for everything you have done and are doing to find a route out of this pandemic.

I know that College members worked tirelessly during the COVID-19 pandemic and the College has been supporting and providing guidance, during the rapid escalation of the situation, to the microbiology, virology, infection, blood sciences and immunology communities to manage viral and antibody testing. As we emerge from the pandemic, it is vital that services are reinforced and supported to optimise healthcare recovery both for COVID-19-related illness and for the healthcare backlog. Pathologists are key to reducing the backlog, especially in cancer diagnosis.

> Since meeting Professor Mike Osborn ... in March 2021 and being introduced to the College, I have been overwhelmed by the amazing work that pathologists and scientists do.

I have been in regular contact with the College throughout the pandemic to hear more about the fantastic work they are doing to support members at this difficult time, and what steps they feel the government could take that would be helpful in maximising our recovery.

Pathologists have also been at the forefront of transforming medical practice. One example is genomic medicine. Genomics provides an incredible opportunity for faster, accurate diagnosis and tailored treatment for people with cancer, and for better diagnosis for people with rare diseases. College members who have specific expertise and knowledge in this area are central to the successful implementation of genomic medicine across the NHS. However, this will require investment – with more staff equipped with knowledge, and laboratories with equipment.

> As we emerge from the pandemic, it is vital that services are reinforced and supported to optimise healthcare recovery both for COVID-19-related illness and for the healthcare backlog.

Locally, The Royal Marsden in Sutton, which borders my constituency, is part of an ambitious initiative to sequence the genomes of thousands of people in England, to create a new Genomic Medicine Service for the NHS and transform the way people are cared for.

I know that the College is concerned that there is no planned resource provision for the significantly increased workload that the Genomic Medicine Service will create for pathology, which will grow over time. Without this being addressed there will be very significant issues in providing the quality and level of service desired and aspired to by the government. I wrote to the Secretary of State for Health and Social Care to raise this and other workforce and resource-related issues.

The £5.9 billion announced by the government at the Autumn Budget to help tackle the backlog of people waiting for diagnostic tests following the COVID-19 pandemic is welcome, as is the extra money promised to the NHS from the new Health and Social Care Levy. However, we need to ensure that some of this new money is used for the vital increased investment in pathology services that the College has been highlighting for many years, particularly in the recruitment and training of pathologists and scientists.

In the Pathologists in Profile section, you can read some fascinating insights into how key figures arrived where they are today. Featured pathologists include Dr Suzy Lishman, past

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College President, consultant histopathologist and medical examiner, who explains how a chance meeting led to her becoming an elected officer of the College. Suzy highlights the importance of promoting pathology through an innovative and dynamic public engagement programme.

> I know that the College is concerned that there is no planned resource provision for the significantly increased workload that the Genomic Medicine Service will create for pathology ... I wrote to the Secretary of State for Health and Social Care to raise this and other workforce and resource-related issues.

Immediate Past President, Professor Jo Martin, was National Clinical Director of Pathology for NHS England from 2013 to 2016 and President of the Royal College of Pathologists from 2017 to 2020. She has played a leading role in British pathology and has shown great commitment to expanding the pathology workforce and making learning accessible.

Dr Matt Clarke, Chair of the RCPath Trainees' Advisory Committee, tells us that he fell in love with pathology after a period as a histopathology trainee. He has since taken up posts with the Institute of Cancer Research and the University College London Hospitals, as well as supporting the College in a variety of committees and public engagement activities.

> I am looking forward to continuing to work with the College to highlight the vital role pathologists and laboratory professionals play in healthcare as we respond to and recover from the pandemic.

Dr David Wells, Chief Executive of the Institute of Biomedical Science, started with a degree in Biomedical Science and, since 2018, has been recognised yearly as one of the 100 powerful advocates for pathology in the global community by the Pathologist magazine.

Professor Cheng-Hock Toh tells us about how he obtained a grant from the Roald Dahl Foundation to develop a walk-in centre for patients with haemophilia and thrombotic conditions so that their care would become less segmented and more integrated from a multidisciplinary, multispecialty team. The centre has constantly been creative in delivering patient-centred care. Its success has also enabled evolution into a hub-and-spoke model to improve patient choice in where care is best delivered.

Professor Kathreena Kurian describes neuropathology and a Cancer Research UK-funded project for early diagnosis of brain tumours. Professor Kurian tells us that a simple blood test performed by a GP in the clinic would aid decision-making and early diagnosis. This would revolutionise care by speeding up diagnosis, reducing costs and anxiety of unnecessary scans, and reducing the number of patients presenting with inoperable large brain tumours.

Professor Sharon Peacock led the initiation and development of the COVID-19 Genomics UK Consortium (COG-UK). Professor Peacock started by convening a scientific group, who together developed bold plans for a nationwide sequencing network, supported by £14.5 million from the UK government COVID-19 fighting fund, administered by the Medical Research Council.

I am looking forward to continuing to work with the College to highlight the vital role pathologists and laboratory professionals play in healthcare as we respond to and recover from the pandemic. If you would like to contact me, please do get in touch: elliot.colburn.mp@parliament.uk.

Elliot Colburn, MP
Conservative MP for Carshalton and Wallington

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PROFESSOR JO MARTIN

Professor Jo Martin has played a leading role in British pathology, having held senior positions with NHS England and representing the College as President from 2017 to 2020. Currently Professor of Pathology at Queen Mary University of London, Professor Martin explains in this profile the personal connection she has with her work on neurological illness as well as her efforts to increase the pathology workforce.

Background

I have a modest background, with a stimulating, happy family. I had a strong and capable mother and still have a lovely father. I have a great 'little' brother (6 foot 6 inches). My fabulous supportive husband Paul is non-medical and we have two (very tall) sons and a Goldendoodle (star of Nelson's pathology week).

My primary school teacher (Miss Feliciant) told me to become a probation officer, but I always wanted to be a doctor. My education was supported by a county scholarship to the local girls' school. I moved to Uppingham School for A levels for the science teaching (the girls' school didn't have strength in science in those days), and I had a shot at Cambridge University for Medicine and got in. I am the first of my family to go to university.

I completed my clinical training at the London Hospital Medical College, did house jobs (last of the 120 hours per week one in two rotas!) and then moved to Guy's and then St Thomas' Hospitals. I returned to the London Hospital to train in pathology. I started on a clinical academic track with a Medical Research Council training fellowship. This was followed by a Wellcome fellowship working at King's before becoming established at Queen Mary University of London.

Key achievements: advocacy, collaboration and training

I have worked together with colleagues in many other disciplines both in pathology and in other specialties and bodies, always with the aim of trying to make things better. I was National Clinical Director of Pathology for NHS England from 2013 to 2016 and President of the Royal College of Pathologists from 2017 to 2020. I am now National Specialty Advisor for Pathology for NHS England and Improvement, chairing the national Pathology Board and the national Pathology Workforce Board.

During my work as President, and in my current role, I am proud that we have made a difference to the investment in workforce in pathology and seen a real increase in training post numbers across many of our disciplines. In addition, the acceleration in investment in laboratory information management systems and digital pathology is something that, while not 'glamourous', is so desperately needed and which is happening. I am particularly pleased to see the positives come out of all the advocacy, and I will continue to push for more.

> I have been privileged to lead for the profession during the pandemic and ensuing incidents related to global and national pressures. I am constantly aston ished at how brilliant my colleagues are and how much they have achieved.

I have been privileged to lead for the profession during the pandemic and ensuing incidents related to global and national pressures. I am constantly astonished at how brilliant my colleagues are and how much they have achieved. In my clinical role, I have always worked with tremendous histopathologists, who have been inspirational, but working in the heat of the pandemic so closely with so many colleagues from virology, infection, immunology and public health, and all the other clinical areas, has been a joy and a wonder. Being part of groups of experts coming together to get the best possible advice in difficult circumstances has made me very proud of our work.

On a different tack, I have always enjoyed teaching and learning (I love to learn too!).

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I developed and lead the Pathology Portal project, an innovative multimillion-pound adaptive learning programme for RCPath and Health Education England, working with Pathology Alliance partners and a range of other colleagues. I like to make learning easy and accessible, and I have designed and developed an award-winning eCPD app. The app has delivered over 50,000 modules free of charge to healthcare staff, including thousands of pathology staff.

I have a long connection with the Motor Neurone Disease Association (my PhD was in the cellular pathology of motor neurone disease), and have worked on the Research Advisory Board, most recently as chair. My grandmother died of motor neurone disease and a friend has it, so their work is close to my heart.

One of the other things that I never expected to do was to work as a volunteer vaccinator and medical cover for vaccination, which I have done since the beginning of the COVID-19 vaccine programme. After lots of e-learning and practical training, I was good to go and seeing the local community come together was amazing.

My clinical work brings me great satisfaction. I work in such a specialised area – neuromuscular disease of the gut – that new entities are not unusual. I enjoy being able to identify significant changes that can help patients understand their symptoms a little better.

> The major challenge is having the time to do the great research and innovation that helps us develop scientifically and in diagnostics. Having time to learn, to think, to improve patient pathways and to carry out key safety work is something we all desperately need.

Key challenges: workforce and resources

There are short-term challenges and longer-term ones. Some are well known – the global healthcare workforce has been amazing, but we are tired, and there is a global shortage of pathologists. Everything we can do to support people will be needed.

Pathology, as with all areas of healthcare, will continue to be challenged for resources, both in terms of staff and equipment. In this setting, I think the major challenge is having the time to do the great research and innovation that helps us develop scientifically and in diagnostics. Having time to learn, to think, to improve patient pathways and to carry out key safety work is something we all desperately need.

Trainees and careers in pathology

All areas in pathology are fabulous, working with just the most brilliant people. Pathology is a family, and intellectually offers so much breadth and depth. You will be spoilt for choice but, whichever pathology discipline you end up in, you will never regret it!

I would say to all trainees: come and meet us!

Maintaining a work–life balance

Have fun and be positive. Walk a lot and keep active, mentally and physically. Keep up with friends and family. Cook!

Final thoughts

I would like to say a massive thank you to all those I have worked with and continue to work with. I learn such a lot from you and with you. The support you give each other and our pathology community is amazing, and so very much appreciated!

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DR SUZY LISHMAN CBE

Dr Suzy Lishman CBE is a consultant histopathologist and medical examiner. During her time as College President from 2014 to 2017, Dr Lishman was instrumental in championing the need for a medical examiner service. She continues to develop learning material and provide training for medical examiners. In her profile, Dr Lishman explains how a chance meeting led to her becoming an elected officer of the College and the importance of promoting pathology through an innovative and dynamic public engagement programme.

Background

Having grown up in Yorkshire and the Fens, I trained at Girton College, Cambridge, and the London Hospital Medical School. After house jobs I went straight into histopathology training, and spent six very happy years at University College London. It was as trainee representative for North East Thames that I first got involved with the College, attending trainees' committee meetings.

For the last 22 years I have worked as a consultant histopathologist at Hinchingbrooke and Peterborough District Hospitals, which merged in 2017 to form North West Anglia NHS Foundation Trust. Over the years I have been lead pathologist for breast, upper gastrointestinal and urological pathology, but have been Colorectal and Bowel Cancer Screening Programme pathology lead for over a decade now. I have been head of department several times, chair of the Medical Advisory Committee, Postgraduate Clinical Tutor and Clinical Governance Lead at various times. I'm currently Lead Medical Examiner, enjoying introducing this important new service across primary and secondary care, and Clinical Lead for Schwartz Rounds, exploring the emotional side of providing care for patients to support staff in all roles.

It was a chance meeting with the late Professor Paola Domizio in 2005 that led to my election as Assistant Registrar, after Paola encouraged me to put my name forward. I was subsequently elected Registrar, Vice President and President, spending 12 consecutive years as a College officer until I stepped down in 2017. Since then, I have chaired the Medical Examiners Committee and I'm national lead for medical examiner training. Outside the College, I am a Trustee of NCEPOD and the Association for Art History, a Council member of the Royal Veterinary College, where I also chair the Ethics and Welfare Committee, and chair of the Scientific Advisory Board of Bowel Cancer UK.

Key achievements

My key achievements are all team efforts – one of the joys of being a College officer is working with a diverse group of people from different regions, specialties and professional backgrounds for the benefit of members and patients. While the President leads the College for three years, they build on the work of previous presidents and are guided by Council and the Trustee Board. I was fortunate to work with a fantastic team of officers, committee members and College staff on a wide range of important issues, some of which are still works in progress!

> One of the joys of being a College officer is working with a diverse group of people from different regions, specialties and professional backgrounds for the benefit of members and patients.

Public engagement

As a trainee I was struck by how little many of my contemporaries and friends knew about pathology but it wasn't until I got involved with the College that I saw an opportunity to do something about it. Introducing National Pathology Week in 2008 and International Pathology Day in 2014 provided the catalyst for pathologists and healthcare scientists to get out of the lab and talk to colleagues, the public and schools about the role of pathology and the diverse career opportunities in the specialty. Having been advised that my aim of holding 40 events the first year was ambitious and unrealistic,

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Dr Lishman using a live model to demonstrate how to perform an autopsy.

in actuality over 300 events were held around the country and many sceptics were converted to the benefits of public engagement, for both pathologists and the public. With the growth of the College's Public Engagement team, thousands of events have now been held, and the College provides basic and advanced science communication training for interested members.

Living Autopsy

Despite developing events to profile all the pathology specialties, the most popular one I hold is the Living Autopsy. From a relatively simple event in 2008, which described what a post-mortem examination involved using a live model and a set of autopsy instruments, the Living Autopsy has grown and evolved to cover a range of different themes, including the death of Richard III, arsenic poisoning, death of an astronaut and the festive Santa dissection. I'm looking forward to taking the Living Autopsy on tour for the College's Diamond Jubilee, with the theme Autopsy: past, present and future.

A YouTube video of the Living Autopsy has been viewed by over one million people and reactions have been very positive, such as, 'This is a brilliant video, and exactly what I needed. My friend recently died and a post-mortem is being done because she died very suddenly and didn't have any known health problems. I found the idea of a post mortem very unnerving at first but seeing you explain how it's done, so calmly and with such respect for the deceased, is very reassuring. Thank you.'

Medical examiners

Despite very successful pilot schemes, repeated recommendations from national inquiries into poor care and a huge amount of work by many people including Professor Peter Furness, former President and Interim National Medical Examiner, implementation of a national medical examiner system has been repeatedly delayed. This made it a priority for me to champion the service when elected President and I met a series of health ministers, the Secretary of State and other stakeholders to try to move implementation forward. I represented the College on the Department of Health and Social Care's Death Certification Reform Strategic Programme Board as President and continue to do so, working closely with a wide range of government and other bodies.

Over the last three or four years much progress has been made and 2022 looks set to see the introduction of the statutory medical examiner system, with medical examiners scrutinising all non-coronial deaths in England and Wales. One of my biggest contributions has been helping to develop learning materials for medical examiners and developing and chairing information-sharing events for stakeholders, training days for medical examiners and the Medical Examiner Annual Conference, which the College hosts each year. Over 1,400 medical examiners had been trained by the end of 2021 and a series of further training events, including joint sessions with coroners, are planned for 2022.

Member engagement

All College presidents understand the importance of engaging with members and I found it one of the most important and enjoyable aspects of the role. Attending regional council meetings, specialist society conferences and public engagement events gave me a great opportunity to meet members around the country and listen to their concerns and ideas. I was pleased to take College Council out of London for the first time and to support the re-establishment of the England Regional Council. I also enjoyed being able to communicate via social media, and am still in contact with many of the colleagues who got in touch through that route.

Workforce and capacity challenges

The main challenge facing all pathology specialties (and all of healthcare) is the lack of workforce and service capacity to meet the increasing needs of the population. Pathology services were already overstretched before the pandemic, but the last two years have put even more pressure on people and the system. There are no easy solutions – doctors

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and healthcare scientists take many years to recruit and train. Initiatives such as National Pathology Week, the Institute of Biomedical Science's Biomedical Science Day and Healthcare Science Week all help raise the profile of the specialty and encourage young people to consider careers in pathology. But this alone isn't enough.

The government is investing more money in healthcare to tackle the pandemic backlog – how much of that will reach pathology remains to be seen. And extra money for workforce is no help if there are no new staff, and the existing ones are exhausted. So we need to think of ways of working more efficiently.

I'm fortunate to work in a cellular pathology department that has introduced digital pathology, largely owing to the vision of my colleague and former College Vice President Dr David Bailey. I thought I might struggle converting to digital pathology but within days I found I preferred it to conventional microscopy for most cases. While reviewing sections takes a similar length of time, measuring or annotating anything, preparation for multidisciplinary team meetings and second opinions are much quicker and easier, freeing up both pathologist and secretarial time. I think we've only scratched the surface of the benefits of digital pathology so far – advances such as artificial intelligence will bring even more efficient ways of working. But all this needs significant initial investment in kit and training, and for remote access to be quick and reliable.

Demand optimisation has been a priority for pathology services for many years, but more can still be done to ensure that the right patients have the right tests at the right time. Sharing best practice, updating IT systems, embracing and investing in new technology and educating service users can all help, but there is clearly no quick fix as much of this relies on adequate numbers of appropriately trained staff.

Inspiring trainees

I'm as enthusiastic now about pathology as I've ever been, so finding different ways to share that passion for the specialty is important. It's vital that students have the opportunity to see pathologists at work, understand what they contribute to patient care and have a chance to spend some time in pathology. This is why I've always been keen that National Pathology Week events, for example, target students and trainees as well as the public. Giving talks, holding lab open days and offering placements and rotations in pathology all help raise the profile of the specialty. Many pathology specialties also lend themselves to more modern ways of working such as flexible or annualised hours or working from home, which are attractive to trainees looking for a better work–life balance.

Maintaining a work–life balance

I'm not sure I'm the best person to ask about this! I'm even busier now than I was when I was President. Two things that I've found helpful are having other interests and hobbies with no connection to work, and taking regular holidays, which I've really missed over the last couple of years.

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PROFESSOR CHENG-HOCK TOH

Professor Cheng-Hock Toh is a professor and consultant in haematology at the University of Liverpool & Liverpool University Hospitals NHS Foundation Trust. Professor Toh has been a member of the College since 1995 and was President of the British Society for Haematology (2018–2020) and Academic Vice President for the Royal College of Physicians (2018–2021). In his profile, Professor Toh discusses the importance of research that benefits patients as well as balancing physical, mental and social equilibrium.

Background

I was born in Ipoh, Malaysia, and came to the UK for A levels. I attended medical school at Sheffield and became interested in haematology during my elective year at Johns Hopkins Hospital in Baltimore, USA. After I received my MRCP, I became a registrar in haematology at Sheffield and then joined the Ontario Heart and Stroke research programme at Queen's University, Canada. Following my RCPath membership, I was appointed as Senior Lecturer and Honorary Consultant in Haematology at Liverpool in 1995. I developed comprehensive care services for patients with bleeding and thrombotic conditions and created a dedicated Roald Dahl Haemostasis and Thrombosis Centre. My research focused on haemostatic dysfunction during sepsis and critical illness, with funding from the Medical Research Council, Wellcome Trust and National Institute for Health Research (NIHR). This led to publications in the top impact factor journals in medicine, haematology and critical care. I was promoted to professorship in 2005.

Key achievements

I have spent my career always trying to be a better doctor. My key achievements are in delivery of clinical care, my academic research and professional leadership.

Comprehensive clinical care delivery

I obtained a grant from the Roald Dahl Foundation to develop a walk-in centre for patients with haemophilia and thrombotic conditions so that their care would become less segmented and more integrated into a multidisciplinary, multispecialty team. The centre has since lived up to its title in being constantly creative in delivering patient-centred care. Its success has also enabled the evolution of a hub-and-spoke model, which improves patient choice in where care is best delivered.

I am proud of the impact that our work has had. We have increased the number of patients cared for and the team has won several national awards. These include excellence in hospital specialty services and in community services around stroke prevention in the UK and in low-income countries. I am also proud to be recognised by the Royal College of Pathologists' Achievement Awards in 2020 for significant contributions to the specialty.

> I want the brightest and the best to come into haematology. I try to inspire trainees the same way I was inspired, by showing how haematology is relevant to the diverse areas of medicine...

Academic impact in research and training

My research has focused on understanding how specific blood changes adversely affect patient outcomes during critical illness, especially by unravelling interactions between coagulation, inflammation and innate immune activation. This set-up has enabled us to quickly contribute to understanding the immuno-thrombotic problems in COVID-19.[1] The research impact also includes patents and a spin-out company in sepsis diagnostics to improve patient care. My clinical trainees have also gone on to win national and international research awards. I have also been elected Senior Fellow of the UK Higher Education Academy for pedagogic contributions to education by developing masterclasses that better harmonise training and competency in haematology across Europe.[2]

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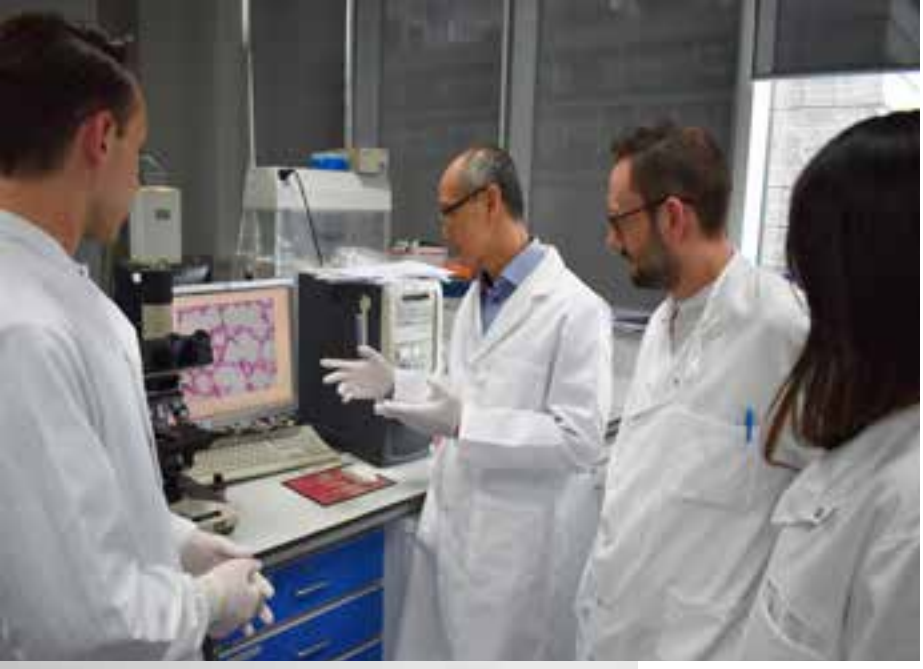

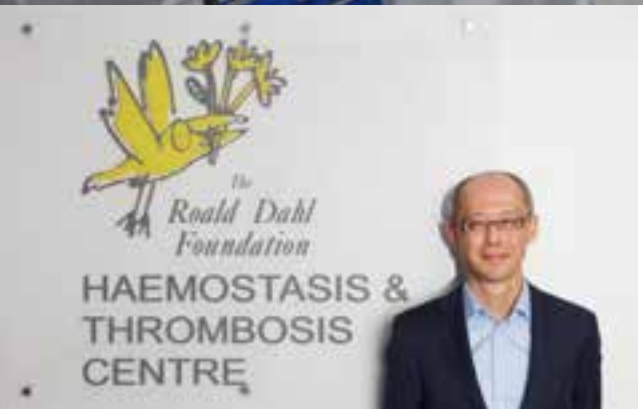

Top: Professor Cheng-Hock Toh in the laboratory.
Left: Professor Cheng-Hock Toh at the Roald Dahl Haemostasis and Thrombosis Centre. which offers advice and care to patients with bleeding and clotting disorder.

I also received the European Hematology Association Education and Mentoring Award in 2021.

Professional leadership

As President of the British Society for Haematology (2018–2020), I established a more open, communicative and inclusive style. Membership numbers have increased by 50% in three years.[3] I was also Academic Vice President of the Royal College of Physicians (RCP) (2018–2021) at the same time. I am proud to have established the first RCP research strategy and resource hub.[4] Our research policy successes included influencing the UK Government's Future for Clinical Research Delivery, which was published in spring 2021. In other roles, such as the National Specialty Lead in Haematology (2015–2020) for NIHR, I was able to drive my passion of integrating research into clinical care by championing the creation of a research-active trainee network called HaemSTAR and sustaining its growth, especially through the challenging times of the COVID-19 pandemic.[5] My latest role is as Chair of the National Blood Transfusion Committee. In this role, I have the ambition of delivering on the Transfusion 2024 strategic vision of delivering better blood transfusion to benefit patients.[6]

Key challenges for pathology

The key challenge is for pathology to be rightly valued. The current workforce concerns will not go away unless staff feel valued and pathology is no longer viewed as somewhat removed from frontline care. Ensuring adequate staff numbers of all disciplines working within pathology is important for RCPath to champion. At the same time, the work will need to be more inter-disciplinary in a climate where there will be a likely de-emphasis from subspecialisation across all fields of medicine. In haematology, there may also be debate or discussions around oncology or non-oncology sub-interests and involvement with general medicine.

There are many pathologists who are not averse to change. It is important that trainees are engaged in those discussions with strategic leadership from RCPath and relevant societies, such as the British Society for Haematology. Collectively, we must always communicate effectively to win the hearts and minds of the public too on the importance of pathology services.

Inspiring trainees

I want the brightest and the best to come into haematology. I try to inspire trainees the same way I was inspired, by showing how haematology is relevant to the diverse areas of medicine and how its integrated clinical laboratory approach to patient care is extremely rewarding, providing a sound platform for academic investigation. This was an area of focus when I was President of the British Society for Haematology with encouraging evidence of its impact to date. It is also crucial to get more of pathology covered in medical school curricula in a way that interdigitates into clinical medicine and frontline care.

Work–life balance

I am always strict with time for the family. Within a month of starting as a new consultant in a new city, my son was born and I made sure to be home by 6pm for bath time! 26 years later, I don't look after my son's bath time anymore, but the habit of leaving work in a timely manner has become entrenched. I do also try to make time to balance physical, mental and social equilibrium, for example through swimming, yoga and painting.

Final thoughts

Being a good doctor, to me, is about being the best I can be in all the different domains of delivering and sustaining excellent care, from devising new ways of delivering clinical/laboratory service to advancing knowledge by doing the best translational research that I can. This also encourages innovation and entrepreneurialism, which helps the development of new products that can benefit patients. I also aim to ensure that our trainees – the future leaders of our discipline – get the best training possible, and the encouragement needed to be the best and most complete doctor that they can be.

References available on our website.

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DAVID WELLS

Starting with a degree in Biomedical Science, David Wells has gone on to hold leading roles with NHS England and the Institute of Biomedical Science, as well as leading the laboratory response to COVID-19. He mentions key achievements including using his pathology expertise to increase the standard of quality throughout the NHS as well as ensuring the continuation of service during the pandemic. David stresses the need for pathologists to make the best use of digital technology in the future.

> All of my achievements were supported by the entire pathology community and bringing them all together was the secret of the success.

Background

On completing my degree in Biomedical Science, I started my laboratory career as a Medical Laboratory Assistant at Addenbrooke's hospital in Cambridge. It was only then that I started to thrive in the world of laboratory medicine. An opportunity to undertake my Health and Care Professions Council (HCPC) registration specialising in Biochemistry followed, as did a promotion to Senior Biomedical Scientist. I worked at Northwick Park Hospital as Head Biomedical Scientist before moving to Great Ormond Street hospital and taking up the positions of Lead Laboratory Manager and Trust Lead Healthcare Scientist.

From there, I was headhunted to join Viapath, the pathology public-private joint venture between Guy's and St Thomas' Hospital, King's College Hospital and Serco. After four years in this role, I moved on to lead the pathology transformation programme for NHS England and Improvement.

During the COVID-19 pandemic, I was moved to Head of Pathology for NHS England to lead the laboratory response to the pandemic. This included managing technology deployment, capacity, funding and workforce, advising ministers, and providing policy and strategic direction.

In June 2021, I took up the role of Chief Executive for the Institute of Biomedical Science, leading the professional body for biomedical and clinical scientists across the four UK nations and across 71 countries, representing 20,000 members.

Key achievements

Since 2018, I have been recognised yearly as one of the 100 powerful advocates for pathology in the global community by The Pathologist magazine. Until June 2021, I was leading the NHS England and Improvement pathology consolidation programme, seeking to deliver efficient, high-quality pathology services across England. Five years on pathology services are embracing this considerable change at a pace not previously seen.

In recognition of this work and the work in transforming England's pathology services, I was awarded an Honorary Fellowship by the Royal College of Pathologists in 2020. For my contribution to the national response to the pandemic, I was awarded an Honorary Doctorate of Science by Anglia Ruskin University.

I was elected as the London region Council member for the Institute of Biomedical Science (IBMS). I have represented the IBMS on NICE diagnostic advisory panels and various national forums, as well as being an observer on the Royal College of Pathologists' Council and on the Parliamentary and Scientific Committee.

Consolidation

My key achievements are linked, and each success has enabled the next, I hope to think not just for me, but for pathology as a whole. For decades in England there has been a strategic drive towards consolidation and networking across large geographies. For 20 years there were small, piecemeal and abortive attempts at change; these were either top-down universal change programmes or local initiatives. In the main these failed to either deliver and certainly not at the scale and ambition needed to effect change.

When I joined the NHS Improvement pathology transformation programme I was able to bring my pathology expertise with me. This balanced the top-down drive against the need for high-quality, patient-centred, clinically lead services that delivered across primary, secondary and tertiary care. The progress into the 29 networks was not equal across the country, but all systems got behind the principle. This enabled some locally driven change and

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supported the collection of data to build an evidence base to work with and through for the future. As I write this, the work towards completing the 29 networks continues. Irrespective of the view of those supporting or holding an alternative view for pathology networking, we have raised the profile of pathology. Even before the pandemic we were able to secure investment in workforce and digital pathology in funding commitments not seen for many years.

The COVID-19 pandemic response

My next key achievement is leading the NHS England's laboratory response to the pandemic. The 29 networks became central in the response to COVID-19. The need to deliver a centrally planned delivery model for COVID testing during an ever-changing environment, where supplies of reagents and consumables were limited, together with a need to scale up capacity and capability of a new assay to laboratories with no or limited experience in the technology, would have been unworkable in any other environment other than the pathology networks. If we had to deal directly with the 200+ individual hospital trusts, we would have quickly ground to a halt and most likely failed in the task of ensuring we had as many tests as required available in the NHS.

Over the 18 months that I was working on the pandemic response, I was able to act as a key interface with the system – providing leadership to the laboratory medicine teams, giving clear direction as well as supporting delivery or articulating the issues facing labs back to policymakers. I was by no means alone in this task, but I am very proud of my contribution to the pandemic and the very privileged position I was in where I was able to contribute to the national effort, and serve my country and our patients effectively. This has had a positive impact on the country's response to the pandemic.

Supply issues

The final key achievement I would like to cover is around delivery under pressure in a major incident. During the pandemic, I was able to effectively manage the second-largest major incident involving pathology in the NHS' history – second only to the pandemic itself.

During October and November 2020, a major and critical supplier of routine and esoteric reagent and consumables to the NHS found themselves unable to deliver in a sustainable way. This led to a national shortage putting approximately 50% of all pathology services at risk of failing within days. Using the 29 networks and a very transparent working relationship with the supplier, I was able to effectively navigate supply issues to ensure that no acute services failed. Although a number of GP and non-acute services were suspended for a period of weeks, we were able to keep every single hospital open for acute activity.

Collaboration

All of my achievements were supported by the entire pathology community and bringing them all together was the secret of the success. Using my understanding of how pathology 'works' has meant that change and agility were possible in an environment sometimes resistant to change. I genuinely thank everyone that I have worked with throughout my career. It is hard to mention any names without the fear of missing someone out, however I must mention three individuals: the late Dr Marion Malone, Professor Adrian Newland and Professor Jo Martin. I thank them for their help, their confidence in me, and their honest, clear guidance. Without them, I would not be where I am now.

Key challenges

The biggest challenges for pathology are the digital agenda and the gap in the workforce.

Digital will enable new ways of working, both in new roles for individuals and new diagnostic tools, some of which are yet to be invented! With revolution in digital capabilities comes the modernisation long hoped for, but it means new ways of working, and more and greater data sources. The future workforce will need to be different, to close the gap and take advantage of the digital revolution. This will mean that as our current roles change, we remain focused on the patient and the safety of our services that we all hold dear.

The other big challenge that this modernisation will enable is moving from a reactive diagnostic paradigm to a proactive approach to diagnostics. It will allow us to use our current and future tools to deliver faster, more effective access to patient pathways, ensuring equality of access for all and improved patient outcomes. This will increase the expectation on the profession to deliver an excellent clinical service and support closer to the patient, requiring increased support to a greater range of clinicians, with innovative ways of delivering services, new roles and working remotely.

Inspiring trainees

There are so very few medical specialties that offer not only a full and interesting career to medical students, but also to scientists. Pathology and laboratory medicine allow individuals to choose to work in disciplines studying medicine before conception to post mortem and everything in between. Indeed, some areas of pathology have all of this as a default! There really cannot be a better area of medicine in which to work.

Work-life balance

Pathology is my job, but it is also my passion! So perhaps it is more that you should do what you enjoy, and make sure you enjoy what you do.

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PROFESSOR KATHREENA KURIAN

Professor Kathreena Kurian achieved her medical school aspiration of becoming a neuropathologist. Following her initial studies at Guy's and St Thomas', Professor Kurian now runs the Brain Tumour Research Centre at the University of Bristol, where she is also a professor of neuropathology. In her profile, she explains her CRUK-funded research in state-of-the-art brain cancer detection technologies. She also emphasises the importance of her father's advice for overcoming adversity.

How did you become an academic neuropathologist?

At medical school, I knew I wanted to be a consultant and pictured myself walking along corridors wearing a classy suit. I caught the investigative bug during my Experimental Pathology intercalated BSc and loved the lifestyle that pathology gave me. I thought 'neuro' sounded great and loved the research and teaching that neuropathology gave me more freedom to do.

My dad came to Britain in 1959 via train, boat and plane with £5 in his pocket. He had been teaching mathematics in Ethiopia, had paid off his family's debts and wanted a better life. At the time, the UK government was inviting Commonwealth citizens because it needed workers, whereas the USA still had legal racial segregation in many states. As he was from Kerala, India, and was worried about racism in the USA, my dad chose to emigrate to the UK.

My mum moved from India to England later and I was born in Neasden, London, followed by my little sister, Anna. We experienced overt discrimination in those days: name-calling in the street, bricks thrown at our house, paint on our car and threatening phone calls.

As a teacher, my mum knew that education was a passport to a better life for me. She eventually became head teacher at Harlesden Primary in London, which was no mean feat for her in those days. My dad worked for British Airways for 20 years in the same role. His immediate line manager openly supported Enoch Powell and made sure that my dad never progressed in his career. My father died last year. He said his greatest achievement in his life was his two daughters. I miss him.

I got into Guy's Medical School, where I did an intercalated BSc in Experimental Pathology. I earned a pathology training number, did an MD research degree and passed my Part 1 in General Pathology. Then I had a daughter, Sarina. I specialised in neuropathology, finally achieving my Part 2. Then I had a second daughter, Christina. After a locum consultant post in Cambridge for two years, I secured a substantive NHS consultant neuropathology post in Bristol.

> Mine was not a traditional route or expected outcome, to be honest. I would say I have exceeded my original ambitions to be a consultant ... [but] needless to say, I have had multiple failures and rejections along the way, one or two of which nearly broke my spirit.

I kept doing research while I was an NHS consultant because it is my passion and, owing to this, I got an opportunity to join the University of Bristol as a Reader/Associate Professor. I was finally promoted to Professor of Neuropathology this year through my papers, grant funding, teaching and contributions to society.

What is neuropathology and who do you collaborate with?

We are a very small clinical subspecialty with approximately 65 neuropathology consultants supporting 27 regional neuroscience centres. We help patients with neurological diseases by providing diagnostic, prognostic and predictive information to guide treatment decisions.

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CRUK's early diagnosis team. Left to right: Professor Richard Martin, epidemiologist, Professor Carman Galan, chemist, Neciah Dorh, industry, me, Associate Professor Sabine Hauert, engineer.

We work in small teams with our biomedical science and laboratory technician colleagues to diagnose specimens from patients with neurological disorders.

Most cases come from brain tumour patients. We make diagnoses while the patient is on the table to guide the neurosurgeon. We then refine our histologic diagnosis of the tumour specimen with molecular genetic data provided by geneticists. This informs the multidisciplinary team, which includes neurosurgeons, neuro-oncologists, nurse specialists, neuroradiologists and palliative care clinicians, who formulate the best treatment options to discuss with the patient.

We also diagnose neurological infections such as meningitis and inflammatory disorders detected in cerebrospinal fluid specimens from lumbar punctures. We identify muscle and nerve disorders by examining muscle and nerve biopsies sent from neurologists, rheumatologists and general medics, and diagnose eye disorders in some centres.

Importantly, we inform grieving families through examination of neurological post-mortem specimens (whole autopsies and fixed whole brains). We also give evidence to the coroner through forensic brain examinations and may act as expert witnesses in medicolegal cases.

What is the aim of your brain tumour research?

The aim of my research is to reduce the burden of brain cancer by identifying risk factors and biomarkers that will inform prevention, personalised diagnosis and treatment. I have a family member who had a brain tumour, so it is a personal as well as a professional passion.

My research spans epidemiology, biomarker research and translation to the clinic. Two examples include our early diagnosis Cancer Research UK (CRUK) project grant, for which I am a principal investigator, and the CRUK-funded GALA-BIDD trial in which I was a co-investigator.

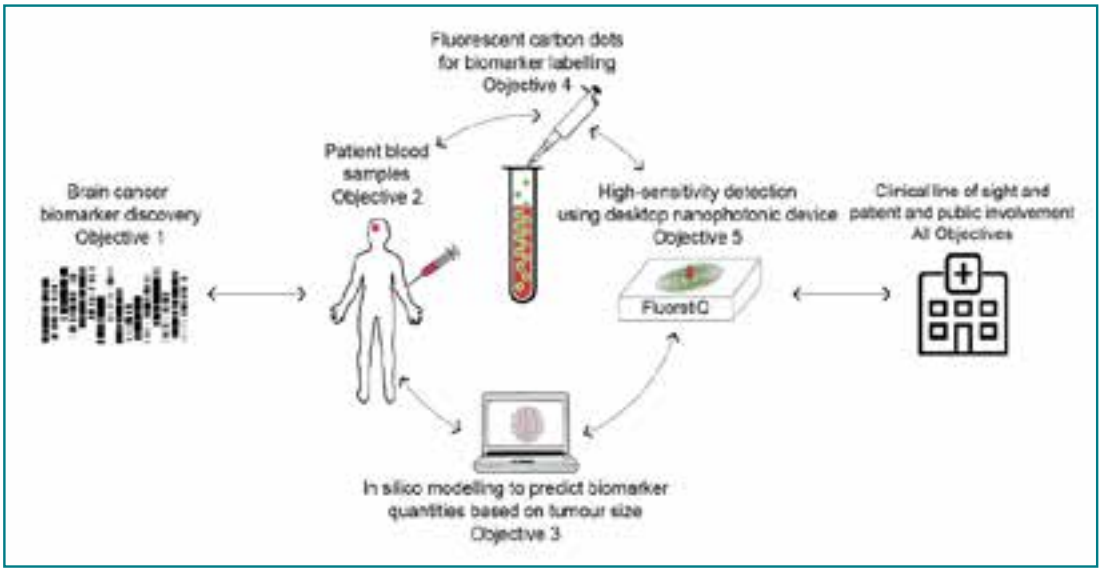

Figure 1. Overview of CRUK early diagnosis project grant using monoclonal antibodies conjugated to nanoparticles.

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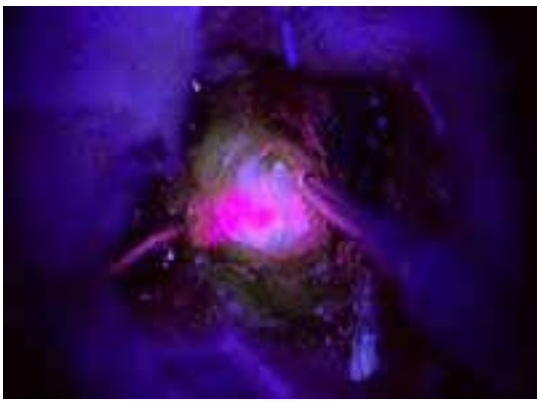

Figure 2. High-grade glioma cells cannot metabolise 5-ALA fully. The intermediate metabolite protoporphyrin IX glows pink under ultraviolet light on the operating table and can guide the neurosurgeon.

Early diagnosis: CRUK-funded project grant
There is a pressing need for the discovery of new blood biomarkers for brain cancer and state-of-the-art technology that allows for its sensitive detection.

With this project we expect to:

1. discover novel biomarkers, in addition to known markers such as glial fibrillary acidic protein, which will be used as a baseline
2. develop a fluorescent nanoparticle that can label this marker in blood
3. work with the startup FluoretiQ towards using cheap desktop nanophotonics for high-sensitivity detection of nanoparticles.

Brain tumours reduce the life expectancy for an average patient by 20 years. In the UK in 2013, 38% of brain tumour patients visited their GP five times or more before diagnosis, which is partially because symptoms such as headache are not specific to brain tumours. We have shown that, although headache is strongly associated with brain cancer, the chance of a patient with headache having brain cancer is very low, meaning that many worried-well patients undergo negative MRI/CT scans to exclude diagnosis. Moreover, 62% of emergency presentations for cancer (between 2006 and 2008) were brain tumours, which may be large and inoperable. Early diagnosis is a top priority for the James Lind Alliance, as defined by the brain tumour neuro-oncology community.

A simple blood test performed by a GP in the clinic would aid decision-making and early diagnosis. This would revolutionise care by speeding up diagnosis, reducing costs and anxiety of unnecessary scans, and reducing the number of patients presenting with inoperable large brain tumours. Moreover, this test could be used as an early monitor of brain tumour recurrence. This work would be followed by a multicentre prospective cohort biomarker study to determine the efficacy of the test in a real-world setting.

By attaching a monoclonal antibody to a nanoparticle, different markers could be detected at lower detection levels (Figure 1). This is made possible by the fact that FluoretiQ is currently working on business models to deploy their high sensitivity test kits in clinical practices at a price point of £10 per test.

Intraoperative diagnosis: CRUK GALA-BIDD cohort study on 5-ALA
Intrinsic brain cancers (gliomas) are classified as low and high-grade tumours. Correctly identifying high-grade gliomas during surgery can potentially improve removal and survival. Gliolan, also known as 5-aminolevulinic acid or 5-ALA, can be safely taken orally prior to surgery, which enters gliomas in part through blood vessels with an abnormal blood-brain barrier.

Glioma cancer cells have reduced ferrochelatase activity that normally metabolises 5-ALA, resulting in accumulation of protoporphyrin IX, a fluorescence generating substance, in their mitochondria. This means that the neurosurgeon can turn down the lights in surgery, turn on the ultraviolet lights and visualise the high-grade glioma which glows pink – otherwise known as 'pink drink' (Figure 2).

I assessed samples on the trial study on 5-ALA. The great news is that 5-ALA is now NICE-approved and is given to all UK patients with suspected high-grade glioma.

What advice would you give to an aspiring academic pathologist?

When I was young, my dad told me the legend of the Scottish king, Robert the Bruce, who had been defeated in battle by the English six times and fled from the battlefield to hide in a cave. In the cave, he watched a tiny spider patiently build its web over and over again, after every time it was blown away. The spider's persistence inspired the king to go back into battle and achieve victory. My dad's words helped me through several hard times later in life. Essentially, he was telling me to never give up. Keep spinning your dreams.

Mine was not a traditional route or expected outcome, to be honest. I would say I have exceeded my original ambitions to be a consultant, although I should add that I still cannot afford a Chanel suit. Needless to say, I have had multiple failures and rejections along the way, one or two of which nearly broke my spirit.

Get research experience early on in your career to see if you like it. First of all, try to help with any paper as a co-author and then move quickly from case reports to case series, which I believe are more valuable. Also, I would certainly advise doing a PhD rather than the MD. I had funding for a PhD but was advised to do an MD by my academic doubters. I would build your research on your clinical expertise and then collaborate outside your specialty. Do not do good work in silence – let your supervisors know. When self-doubt creeps in, channel Beyoncé and smile.

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PROFESSOR SHARON PEACOCK CBE

Professor Sharon Peacock is a professor at the University of Cambridge who has held senior academic positions in the UK and Thailand. A member of the College since 1995, her esteemed career in microbiology was recognised with a CBE awarded in 2015. Since March 2020, she has played a key role in the genomic sequencing of COVID-19. In this article, Professor Peacock outlines her achievements in pathogen research and comments on the challenges that trainee pathologists face.

Background

I took a circuitous route into medicine. After leaving school at 16, I trained as a dental nurse and then a nurse, later specialising in end-of-life care. I obtained GCSEs and A levels at several part-time technical colleges by 23 and then landed a place to study medicine at the University of Southampton. I am forever grateful to the clinical admissions tutor who took a chance on me!

After qualifying as a doctor, I trained in postgraduate medicine in Southampton, London, Brighton and Oxford, before specialising in clinical microbiology and virology in Oxford. A Wellcome Trust Research Training Fellowship in microbiology allowed me to explore interactions between Staphylococcus aureus and human endothelial cells, a project based in Oxford (with Dr Tony Berendt) and Trinity College Dublin (with Professor Tim Foster). Around that period, I juggled my time to study for a BA in History with the Open University.

A Wellcome Trust Career Development Fellowship supported a move from Oxford to the Mahidol–Oxford Tropical Medicine Research Unit (MORU) in Bangkok, Thailand, where I became head of their microbiology research programme under the leadership of Professors Nick White and Nick Day. I returned to the UK after seven years in Thailand. A chair position in clinical microbiology at the University of Cambridge and an honorary faculty position at the Wellcome Sanger Institute provided the environment to develop a research group to explore the utility of pathogen sequencing in clinical and public health microbiology. This was supported beyond measure by Professors Julian Parkhill and Gordon Dougan.

A period as Director of the Bloomsbury Research Institute, London School of Hygiene & Tropical Medicine and University College London was followed by a return to Cambridge to a position as chair in public health and microbiology. After this, I took on a 24-month secondment to Public Health England, first as director of the National Infection Service and then, from April 2020, as Director of the COVID-19 Genomics UK Consortium (COG-UK). Now back in Cambridge and focused on COG-UK and pathogen genomics, I am thinking about what's next for pathogen genomics, as well as planning the contents of a book.

> It is the people I have met along the way that have brought me great joy, only some of whom are mentioned by name here.

A growing interest in wider issues relating to good governance and management led me to take a Financial Times diploma to gain the knowledge to become a Non-Executive Director (NED). This supported my appointment as a NED on the Board of Cambridge University Hospitals NHS Foundation Trust and chair of the Quality Committee, a part-time role that I have balanced with other responsibilities. Already six years in post, this has been one of the most rewarding roles of my career.

Key achievements

Sequencing COVID-19 variants

In March 2020, I directed the initiation and development of the COVID-19 Genomics UK Consortium (COG-UK). I started by convening a scientific group, which developed bold plans for a nationwide sequencing network, supported by £14.5 million from the UK Government's COVID-19 fighting

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fund, administered by the MRC. This was a major team effort and the work of hundreds of people, but we could not have got the consortium operations up and running without Dr Catherine Ludden, Dr Ewan Harrison, Dr Katerina Galai and Beth Blane.

COG-UK consists of numerous academic institutions, the Wellcome Sanger Institute, and the four public health agencies of the UK, which became networked with over a hundred NHS diagnostic and high-throughput COVID-19 testing, or lighthouse, labs. This capability was required to generate the data that allowed the detection of new variants that alter vaccine efficacy, disease severity and/or transmissibility, and has been critically important for public health interventions and vaccine roll-out. By September 2021, more than a million UK SARS-CoV-2 genomes had been generated and used in the pandemic response, as well as being released into global open access databases. CLIMB (Cloud Infrastructure for Big Data Microbial Bioinformatics) has been central to our success. The data has been used to detect and track variants of concern, including Alpha and Delta. COG-UK also provides in-depth information on variants using resources such as the open access Mutation Explorer.

We handed over all routine sequencing of SARS-CoV-2 to the public health agencies in September 2021, in support of a sustainable long-term plan for large-scale public health pathogen sequencing in the UK. The current focus of COG-UK has pivoted to global training in SARS-CoV-2 sequencing, data linkage with other major datasets, and research supported by the availability of viral and host genomes and detailed health informatics data. Health Data Research UK is a key partner as we work to move genomic and other data into Trusted Research Environments where they can be accessed in the longer term.

Pathogen research

Prior to COG-UK, I worked for a decade to generate evidence for the importance and impact of pathogen sequencing. My research group was among the first to use benchtop sequencers to demonstrate the power of retrospective sequencing to confirm or refute MRSA outbreaks. We then provided evidence for near real-time sequencing to detect and control outbreaks from bacteria such as MRSA. This included the development of the 'sequence first' principle to detect outbreaks before they are clinically apparent. My group also demonstrated how sequencing was primed to replace many conventional microbiological tests being performed in reference microbiology laboratories, including the prediction of drug resistance in pathogens. We also used sequencing to detect the source and spread of numerous antibiotic-resistant bacteria using a One Health approach, finding that, in these UK studies, antibiotic administration in humans is the largest likely driver of antibiotic resistance/resistant infection in humans. Many people were involved in this work, but particular thanks go to Doctors Kathy Raven, Catherine Ludden, Francesc Coll, Theo Gouliouris, Michelle Toleman and Estée Török.

In Thailand, my focus was on melioidosis (an important tropical disease with a high mortality caused by the environmental bacterium, Burkholderia pseudomallei), leptospirosis and rickettsial infections. The clinical melioidosis trials we completed created the foundations for international treatment guidelines, while working groups led to guidelines on treatment following accidental laboratory or deliberate exposure to B. pseudomallei. We used pathogen genomics to define the global spread of B. pseudomallei and used molecular methods to explore the genetics of the organism in soil and environmental water. I am particularly proud that, over this period of seven

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years in SE Asia, I trained 12 PhD students – many of whom have gone on to become senior lecturers and professors. I am also proud of the work that we did to increase microbiology capacity at a hospital for children in Cambodia. None of this would have been possible without Vanaporn Wuthiekanun and Professors Direk Limmathurotsakul and Narisara Chantratita.

Academic achievements

Over the course of my academic career, I have been fortunate to have been involved in numerous funding panels. This includes numerous MRC panels (including five years on the Infection and Immunity Board), and funding or other panels of the US National Institutes of Health, Academy of Medical Sciences, Royal Society, the National Institute for Health and Clinical Excellence and the National Institute for Health Research.

I currently chair the Sir Jules Thorn Charitable Trust Advisory Committee. I have managed over £50 million in funding as PI or co-PI and have published more than 500 peer-reviewed papers and book chapters. I am a Fellow of the Academy of Medical Sciences, a Fellow of the American Academy of Microbiology and an elected Member of EMBO. In 2015, I received a CBE for services to medical microbiology and, in 2018, I won the Unilever Colworth Prize for outstanding contribution to translational microbiology.

Looking back, none of this would have been possible without the incredible people I have had the good fortune to work with. It is the people I have met along the way that have brought me great joy, only some of whom are mentioned by name here. My husband and three children have been my touchstone and have kept me grounded and optimistic, no matter what.

Key challenges for pathology

When I first started my training in clinical microbiology and virology, there was an expectation that I would know enough bench microbiology to run a bench, a specific area that processes certain samples, such as blood cultures or urine samples. As a trainee and a consultant, it was routine practice to work in a highly integrated way with colleagues who undertook the microbiology and ran the laboratory. With the number of clinical microbiology labs reducing in recent years and the development of hubs that serve numerous hospitals, clinical microbiology trainees feel that they lack the opportunity and experience in laboratory practice. This disconnect is also felt around the FRCPath Part 2 exam, where lack of exposure can lead to lack of confidence in the practical section. Trainees may also lack exposure to how a lab is managed, including when problems arise and troubleshooting is needed. The same lack of exposure may also occur in infection, prevention and control so that newly appointed consultants with responsibility in this area can feel unprepared. Some trainees also consider that they lack exposure of travel medicine, particularly now that many travel clinics are privatised.

In terms of fixing the problem, I can think of two solutions (which are probably linked). The first would be to mandate lab attendance, bench experience, attendance to IPC meetings, and travel clinics (these are all required skills for the certificate of completion of training). The second would be to not view trainee work as predominantly one of service provision, conducting routine work such as authorisation and being sat next to a phone answering micro-queries. This is clearly an important part of training but not sufficient alone. Being present on the wards through consult teams and specialist rounds, as well as seeing and examining patients as part of multidisciplinary teams, provides the best deal for patients and for trainees.

Work–life balance

It's essential to refine the skill of saying 'no'. This will help you to focus on those things that you really need or want to do, avoid overload and allow you to take much needed time out for family, friends, hobbies and activities. This does not have to be a negative; suggesting someone who could benefit from the opportunity can also help those people around you.

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DR MATT CLARKE

Once planning to become a vet, Dr Matt Clarke fell in love with pathology after a period as a histopathology trainee. He has since taken up posts with the Institute of Cancer Research and the University College London Hospitals, as well as supporting the College in a variety of committees and public engagement activities. In his profile, he highlights his achievements in oncological research and gives advice for new trainees entering the field.

Background

I am the eldest of three brothers and grew up in the countryside village of Stutton in Suffolk. My father was a vet and my mother was a veterinary nurse who also worked with people with learning difficulties and disabilities. I originally wanted to become a vet, but I did not achieve the A levels needed so I undertook a BSc in Zoology at the University of Liverpool in 2004. After a gap-year I studied at Keele Medical School where I thoroughly enjoyed all the specialties but then decided to pursue a career in surgery after graduation.

My whole perspective changed after a four-month FY2 post in histopathology with Dr Mark Stephens. I absolutely loved it! I initially started on core surgical training in London, but then reapplied to enter histopathology training and did not look back. I took the opportunity to do the BRC Molecular Pathology Starter Programme at the Institute of Cancer Research (ICR), which led to the completion of a PhD in the molecular pathology of infant gliomas under the supervision of Professor Chris Jones. It also led me to apply for diagnostic neuropathology training and to also successfully apply for an academic clinical lecturer post with my time split between the ICR and UCLH.

> I am regularly contacted by oncologists from around the world and it is a pleasure to hear about the positive outcomes for these brave little children and be able to offer advice about any new diagnoses. It encourages me to continue pursuing research as part of my career.

Key achievements

Advances in oncology

One of my proudest achievements was studying for my PhD on the molecular pathology of infant gliomas. As a result of this work, we were able to classify and characterise a new group of brain tumours occurring within the infant population and identified a single translocation in either the ROS1/NTRK/MET/ALK genes driving the tumour, which was targetable. This work resulted in a first-author publication in the journal Cancer Discovery with numerous opportunities to present my work at national and international meetings. I was awarded the RCPath Trainee Research Gold Medal. It also has resulted in the implementation of a clinical trial and the inclusion of a new chapter in the new 2021 edition of the WHO classification.

I am regularly contacted by oncologists from around the world and it is a pleasure to hear about the positive outcomes for these brave little children and be able to offer advice about any new diagnoses. It encourages me to continue pursuing research as part of my career.

College Trainees' Advisory Committee

I have been involved in the College's Trainees' Advisory Committee for many years before taking on the role of Chair. This has been a very challenging role but I have enjoyed it immensely and learned so much. We have achieved a great deal including improving communication channels between the College and trainees, implementing an ongoing anti-bullying and harassment campaign, encouraging discussions about learning from errors and mistakes in pathology, and supporting patient safety awareness. I have also supported the Pathology Summer School, co-organised the RCPath/BDIAP Foundation & Undergraduate

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Dr Clarke working at The Royal Marsden.

Taster events and have led a collaborative survey of the trainee body assessing the impact of COVID-19 on pathology training. I was also fortunate to be able to interview Professor Sir James Underwood about histopathology's past, present and future, which has been used as an engagement resource by the College. I am a member of the Diversity Network, the Digital Pathology Committee and the Neuropathology SAC. I am also an Operational Delivery Trainee as part of the Pathology Portal Project Board, where I support the creation of digital neuropathology learning material for the platform.

The pandemic has presented a lot of challenges for trainees and I am proud of how the Trainees' Advisory Committee has worked with the College to help support trainees through the provision of coaching sessions, 'drop-in' services, helping to re-start the examinations, and distributing useful training-related information via the trainee aspect of the website. I was also a member of the team that was redeployed as a Deputy Mortuary Manager to help set up and work in the mortuary of the NHS Nightingale Hospital, working with Professor Mike Osborn. I was proud to be awarded the President's Trainee Award from Professor Jo Martin in 2020.

Promoting pathology

I was very touched to be nominated for and then included on the Pathology Power List 2021 and being recognised among so many eminent members of the pathology workforce. I was very proud to give a talk on 'Provisioning for the future of pathology', which several members of my family were able to see – the very first time they have been able to see me give a talk.

> The pandemic has presented a lot of challenges for trainees and I am proud of how the TAC has worked with the College to help support trainees...

I have been continually involved with public engagement work, including science speak-easy talks, careers talks, ICR Discovery Clubs, and events for local schools and colleges. I am a founding member of the faculty for Path to Success and was awarded both the College's Furness Prize for Science and Communication in 2020 and the ICR Public Engager of the Year award.

As Trainee Councillor for the British Division of the International Academy of Pathology (BDIAP), I helped to create the foundation membership for junior doctors who want to explore careers in histopathology. I am now the Deputy Meetings Secretary of the BDIAP, where I oversee the organisation of the Molecular Pathology and Approach to Cut-up study days.

I am the ACP Trainee Communications Officer as part of the Trainee Members Groups and I was Assistant Editor of the ACP News where I regularly contribute articles about pertinent issues or discussions, and I have recently taken over the role of Editor.

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Key challenges for pathology

Investing in the specialty

The COVID-19 pandemic has had a huge impact on pathology departments, trainers and trainees. It has disrupted training and examination schedules for many across the pathology specialties, causing significant interruption of trainee progress and study time. It has also highlighted the lack of digital resources across pathology departments. Trainees are the capital of the specialty and the future of pathology. Investment is needed to help reboot training and ensure that the resources needed are available. This includes supporting the digital transition of pathology departments across the UK and supporting the continual investment in such beneficial projects as the Pathology Portal digital learning platform.

> I was diagnosed as a type 1 insulin-dependent diabetic at the age of four. I have never let this hold me back ... I hope that this can inspire others...

Supporting our workforce

Wellbeing issues are also a significant concern; we need to make sure that every member of our workforce feels supported. Coaching and reflective practice sessions have been immensely beneficial to me and such resources should be widely available. Without a happy and healthy workforce, we will lose valued members of our specialty.

We should welcome diversity in our workforce, committees and institutions, embracing difference as an opportunity for positive change and encouraging different perspectives to be considered.

> For any trainee considering ... a career in pathology, you would be hard pressed to find a more cutting-edge and rapidly changing specialty. Pathology is constantly adapting and developing to meet the needs of our patients...

Inspiring trainees

For any trainee considering entering a career in pathology, you would be hard pressed to find a more cutting-edge and rapidly changing specialty. Pathology is constantly adapting and developing to meet the needs of our patients according to the latest academic research. It is a fascinating specialty that never ceases to astound and amaze me. You are effectively working as a medical detective, looking at the evidence and bringing all the jigsaw pieces together across different specialties to ensure an accurate diagnosis for the patient and subsequently recommending the best course of treatment and management with ongoing learning throughout your career. There are so many opportunities to get involved with teaching and research. With the continual advances in molecular pathology, digital pathology, artificial intelligence and others, it certainly is a very exciting time to be in pathology.

Work–life balance

Maintaining a work–life balance has always been a struggle for me. However, I have been able to address this problem as a result of some coaching sessions kindly provided by Sarah Gornall and reflective practice sessions with Dr Bridget Wilkins. I find working with my 'inner critic' very helpful.

Your inner critic is often one of the characters that can put unnecessary pressure on you by being overly critical. Changing this relationship to a more collaborative mentality has changed my perspective on how I approach my daily tasks and helps me keep optimistic.

Living with diabetes, my constant companion

I was diagnosed as a type 1 insulin-dependent diabetic at the age of four. This has presented another unseen challenge to my daily work. I have never let this hold me back or prevent me making the most of an opportunity. I hope that this can inspire others and any parents who have a newly diagnosed child with diabetes. You can still live a normal and happy life with the condition. I view it as my constant companion, rather than an obstacle to my progress.

There are many people who have provided immense support throughout my career and I would like to thank you all. If I can be half as inspirational as you all have been to me, I will be a very happy pathologist.

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A house of our own

With the College celebrating its Diamond Jubilee this year, Registrar Dr Lance Sandle and Past President Professor Sir James Underwood look back through the history of the College, from its founding in 1962 to royal visits and its core mission and charitable aims.

Dr Lance Sandle

Professor Sir James Underwood

A fissiparous tendency

For centuries, regulation of the medical profession in England was vested in three bodies: the Royal College of Physicians (RCP), the Royal College of Surgeons and the Society of Apothecaries. These organisations, rooted in the 16th century, were created for the noble purpose of protecting patients from incompetent practitioners. They fulfilled this by setting standards for training and practice, and, until the Medical Act 1858 and the inception of the General Medical Council, issued licences to practise.[1]

As medicine grew in complexity, new specialties formed and sought their own representation separate from the ancient institutions. This led to the founding of the royal colleges of Obstetricians and Gynaecologists in 1929 and of General Practitioners in 1952. Commenting on the inauguration of the College of Pathologists in 1962, an editorial in The Lancet attributed this collegiate evolution to the medical profession's 'fissiparous tendency'.[2]

Pressure for stronger collegiate representation of pathologists was the inevitable consequence of the specialty's growth during the 20th century. In 1938/1939 approximately 85 pathologists were practising in England, Scotland and Wales.[3] By 1960, this had risen to 725 pathologists, a growth rate far exceeding that of physicians, surgeons or gynaecologists.[3] Many of these pathologists saw themselves as physicianly specialists and, if they had affiliation with a medical royal college, it was with the RCP. In 1948, that college had created a Committee on Pathology and in 1951, in collaboration with the Royal College of Surgeons, it launched the Conjoint Diploma in Pathology.

Many pathologists remained discontent with their representation by the RCP. Their choice was either to negotiate a stronger role in the RCP, a large organisation already prominent in the medical landscape, or to succumb to the fissiparous tendency and strive boldly to create a new college solely for their specialty.[4]

The pathologists' house

Pathologists wanted professional parity with physicians and surgeons. They regarded the Conjoint Diploma as inferior to MRCP, branding them as 'sub-consultants'. But even MRCP would not entitle them to any role in the governance of the physicians' college, a privilege reserved for its fellows.

The notion of a pathologists' college was advanced mainly by the Association of Clinical Pathologists (ACP), initially through a committee chaired by Professor Gordon Hadfield. A particularly influential submission to Hadfield came from five Sheffield pathologists – Eddie Blackburn, John Colquhoun, John Edwards, Arthur Jordan and Cecil Paine – who argued strongly for the establishment of a separate body to represent their specialty, crucially to 'have their own house and be masters in it'. Nevertheless, guided by Hadfield's report, the ACP voted in 1955 against the formation of a college and instead negotiated with the RCP for a pathology credential with the same status as MRCP. However, the concept of a pathologists' college wasn't dormant for long.

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Worried by the prospect of the secession of pathologists, the RCP proposed a Faculty of Pathology with a high degree of autonomy, including an MRCP-equivalent examination and eligibility for FRCP on the same terms as existing members. This offer was not sufficiently seductive for many pathologists, who continued to campaign for their own college. In 1958, an ACP working party chaired by Professor George Cunningham made proposals for a college and the steps to establish it. These were supported by 69% of ACP members. Although the Pathological Society of Great Britain and Ireland, or at least its committee, was unenthusiastic initially about a college, it acknowledged that the specialty was heading in that direction, albeit hesitatingly, and decided eventually to collaborate with the ACP.[5]

These events culminated in the founding of the College of Pathologists on 21 June 1962 at a meeting attended by approximately 300 subscribers representing the Pathological Society and the ACP. Sir Roy Cameron, FRS, was elected as President.[6] Founder membership with an entry fee of £50 was offered to consultants and those becoming consultants in the ensuing three years.

Collapse of the curtain rail

Nomadic in its early years, the College's first home was an office rented from the British Red Cross Society at 12 Grosvenor Crescent, London. In 1965, then with almost 2,000 members, the College leased three rooms from the Royal Society of Medicine in Chandos House, Queen Anne Street. The lease was non-renewable, so the College moved temporarily again to accommodation at 16 Park Crescent.

Around this time, Sir Michael Sobell, Chairman of GEC (Radio and Television) Ltd., offered a substantial donation to the British Empire Cancer Campaign. Fortuitously, the College's Registrar, Theo Crawford, was also the Campaign's Scientific Secretary. He suggested that the donation might be made jointly to the Campaign, which also needed new premises, and the College. Sir Michael agreed and within a year a suitable building – 2 Carlton House Terrace – became available on a 99-year lease from the Crown Commissioners. Bombed in October 1940, the building was then being reconstructed but, by June 1970, it was ready for the College's arrival.

Having been granted a Royal Charter in February 1970, the Royal College of Pathologists' premises at 2 Carlton House Terrace were formally opened by Her Majesty the Queen (who continues to be the College's patron) on 10 December 1970. After customary speeches and tea in the library, she proceeded to unveil the commemorative plaque, 'doing it with such vigour that the whole curtain and curtain rail collapsed'![7] This prestigious building was to be the College's headquarters for over 40 years.

A major refurbishment, generously supported by a donation from the Pathological Society, was undertaken in the early 1990s. This was followed in 2007 by the creation of an education centre, to which many College members contributed, in

Our patron, Her Majesty The Queen, visiting 2 Carlton House Terrace in 1970.

Photo credit: The Royal College of Pathologists, Department of Health, John Goodman, Warren Potter, Photos.com.

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Top left: Professor Sir James Underwood in the College's wine cellar at 2 Carlton House Terrace.

Top right: The College's premises at 2 Carlton House Terrace.

Bottom left: Past President Dr Suzy Lishman at the Hoardings Launch of 6 Alie Street in 2017.

Bottom right: Hosting a public engagement event for National Pathology Week 2019 in the Elizabeth Room at 6 Alie Street.

the lower ground floor formerly occupied by Cancer Research UK. Concurrently, meeting rooms on the ground and first floors were modernised with improved audiovisual facilities. During this work, College staff spent six months in rented upper floors of an airless office block near King's Cross.

Eastward bound

In 2012, Crown Estates decided to allow residential use of Carlton House Terrace. Given that 2 Carlton House Terrace was increasingly cramped and not suitable for conferences of a commercially viable size, it was decided to capitalise on the remaining 56 years of the lease, which would have continued to depreciate. The sale was agreed in 2014 and the College was given six months to relocate. Greatly missed would be the enviable view of Big Ben from the desks of the Professional Standards team.

The College moved from 2 Carlton House Terrace over a weekend to 21 Prescot Street, Whitechapel, in February 2015. This vast office block is home to the Royal College of Psychiatrists. We rented the entire fourth floor of the building until the end of 2018.

For College officers, this relocation was simply a matter of consulting a London Underground map to find the best route to their new destination. For the employed College staff, however, this was a huge wrench. They were required to move from characterful premises in the heart of London to an office environment on the edge of the financial district. But most made the best of the change now the entire College was on one floor. Unfortunately, academic activities were curtailed and some larger meetings, such as Trustee Board, Council and New Fellows admission ceremonies, necessitated hiring off-site facilities.

New permanent premises were soon found at 6 Alie Street, just a few hundred yards from Prescot Street. The site needed rebuilding from the ground up. This was completed in 2018. Our new headquarters was designed with respect for the environment in its configuration and use of materials. There are public areas on the first three floors. The sixth floor, which is set back from the main facade at the front

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and back, has roof terraces on both sides and is used as a meeting and function room. When not in use by the College, these spaces help generate income as a venue for academic conferences, product launches and private functions under the brand of Events @ No6, owned by the College. The College hopes to realise this potential more fully as we return to face-to-face meetings after the pandemic. This has increased our visibility and has contributed to recognition by awards such as the Hire Space Awards – Best Newcomer 2019 and The RIBA Regional Award 2021.

Form and function

The College's new building efficiently centralises the organisation's core functions. While its imposing architecture may have symbolic significance for our professional status, it is much less important than the work conducted behind the facade. The College is the professional membership, not a building. They rightly judge it on the functions delivered in that building for the benefit of pathology, ultimately for patients and the public.

Like other medical royal colleges, the Royal College of Pathologists has become a much more patient-centred organisation, reflecting the need for continued compliance with Charity Commission requirements. There is now highly valued involvement of a variety of lay representatives who bring much-needed skills and a fresh perspective to strengthen accountability and ensure the College fulfils its charitable mission. There is influential lay advice to a wide variety of committees, including Council and Trustee Board, the latter now having a lay chair.

Accountability to the profession has benefited since 2014 from the election of honorary officers by the entire membership rather than only by Council. Each of the UK nations is now represented on Trustee Board as well as Council. However, there remains work to be done to ensure both these bodies reflect the diversity of the membership.

Issues may change, but the agenda does not. Our core business is learning, in all its forms, together with professionalism and communications. Learning encompasses undergraduate training, specialty curricula and lifelong education. Our educational standards are recognised and approved by regulatory bodies such as the GMC, as evidence of specialist training and competence.

Professionalism is the fundamental ethos of medical royal colleges. We achieve this with a framework for quality improvement, patient safety and best practice. The College also strives to ensure that the contribution of pathology to patient pathways remains relevant and recognised. There is coordination with the NHS in all four UK administrations in respect of workforce planning and development.

Work on communications and public engagement ensures that the College remains a recognised stakeholder in national discussions on healthcare policy. We have nearly 12,000 members, with approximately a quarter working outside the UK. The College conducts examinations internationally and works with kindred organisations worldwide to support all our members' activities wherever they work.

Relevance, effectiveness and visibility

The College's destiny and prosperity depend on maintaining its relevance, effectiveness and visibility. The last of these is supremely important. The medical royal colleges are approved as charities because their work is for the public benefit. Consequently, through National Pathology Week and other initiatives, the College does much to improve public awareness of the role of pathology specialists in patient care. The College also has increasing relevance by ensuring governments, the healthcare professions and the public can trust and rely on its authoritative advice.

In contrast to its neutrality before the College's formation, the Pathological Society is now fully engaged with other specialty societies in advising on the College's policies and strategies, particularly with regards to the academic aspects of the College's mission. Other bodies share both our interests and our premises, notably the British Division of the International Academy of Pathology and the Faculty of Clinical Informatics. There are also close relationships with the Association for Clinical Biochemistry and Laboratory Medicine, and the ACP, both of which predate the College.

Regardless of the medical profession's fissiparous tendency, the work of our College and of all medical royal colleges is underpinned by the historic mission to serve patients by maintaining the high professional standards of those who contribute to their care.

References available on our website.

Dr Lance Sandle
Registrar

Professor Sir James Underwood
Past President

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Launch of the new curricula

Jenny Maginley

In 2021, the College launched seven new curricula that were the result of four years of work by teams in the Learning Directorate and the curriculum working groups. In this article, Jenny Maginley, the College's Training Manager, provides further information on the process and the roll-out.

Back in 2017, the GMC released their Standards for Postgraduate Curricula (Excellence by Design). These set out the standards for the development and design of postgraduate medical curricula. They require curricula to describe generic professional capabilities, with shared and specialty-specific outcomes. The standards are intended to improve flexibility in postgraduate training and help make training more flexible for doctors, and more responsive to patient and health service needs.

In response to these recommendations, over the past four years the Training team at the College has undertaken the revision of seven specialty curricula: Chemical Pathology, Diagnostic Neuropathology, Histopathology, Forensic Histopathology, Paediatric and Perinatal Pathology, Medical Microbiology, and Medical Virology (alongside the JRCPTB Infectious Diseases and Tropical Medicine curricula as part of the Combined Infection Training arrangements).

All the curricula had to go through a two-stage GMC approval process. The first stage was to submit purpose statements and high-level outcomes for each curriculum, which had to obtain the full support of the four countries of the UK as part of the GMC Curriculum Oversight Group (COG). Our statements explained the need for the curriculum based on an analysis of service needs. Once we had obtained approval from the COG, we made lengthy applications to the GMC's Curriculum Advisory Group (CAG). We had to demonstrate that our new curricula met their new standards, Excellence by Design, which also meets the Shape of Training principles.

The curricula were approved in May 2021 and were officially launched in July 2021. They are assessed by High Level Outcomes, which are included in the form of Capabilities in Practice (CiPs). CiPs describe the professional tasks or work within the scope of postgraduate pathology training. They are based on the format of entrustable professional activities, which are a method of using the professional judgement of appropriately trained, expert assessors as a key aspect of the validity of assessment and a defensible way of forming global judgements of professional performance.

We have recently held three online Curriculum Launch Events for the new specialty curricula for the Training Programme Directors, Educational Supervisors and Trainers. The events were designed to give a better understanding of the incoming curricular changes and how these would affect trainers on a practical level. There was a Q&A at the end of each session, which garnered lots of questions. We also did an induction to the new curricula for the new trainees at the New Trainee Welcome Day in August 2021.

In the next few months we will be working on transitional arrangements for the current trainees to move onto the new curricula. We will also be holding webinars for the current trainees to explain the transition process.

Getting the curricula approved has taken a lot of work. Even though the Training team has led on the curriculum project, the work has been a team effect. It has involved input from the Assessment and Examinations teams and clinical input from the curriculum working groups made up of members from our College Specialty Training Committees to name but a few.

Jenny Maginley
Training Manager

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Ethics: principles and practical application

Rebecca Mussell

Rebecca Mussell, Lay Adviser to the College, highlights the importance of ethics in medicine. In this article, she describes how ethical issues should be identified and sets out guidance on how to appropriately approach and report ethical dilemmas.

What does 'ethics' mean to you?

Over the 60 years of the College's life, there have been many events and developments that have provoked ethical debate: from its inception in the 1960s hot on the heels of the Royal Assent of the first Human Tissue Act,[1] followed later by the Alder Hey[2] Inquiry into organ and tissue retention, to current debates around the creation of large centralised databases.

So, what does ethics mean to you – now – in your everyday work?

Do you believe it is for the leaders of institutions, governments, professional bodies – for research ethics committees and/or clinical ethics committees – to grapple with the big (and small) ethical questions and come up with answers?

Perhaps ethical theory captures your interest and imagination. Are you guided by a set of overriding principles? For example, beneficence and non-maleficence, equity and fairness. Do you believe in consequentialism – focusing on the 'good' outcome? Or virtual ethics – focusing on an individual's qualities such as honesty and compassion?

In practice, it is often more complex than referring to a designated body or set theory.

There are external arbitrators in some circumstances, but professionals also have individual everyday ethical duties and responsibilities. How formal and explicit these are will vary depending on your professional group and where in the world you work.

Doctors registered with the UK regulator – the General Medical Council (GMC) – will also, for example, have individual ethical duties and responsibilities set out in a raft of GMC ethical standards.[3] The core ethical guidance 'Good Medical Practice'[4] outlines the professional values and behaviours expected of them. If there is a 'serious or persistent failure to follow' the guidance that risks patient safety or public trust in doctors, doctors can be suspended or removed from the register to practice.

The laws, regulations, declarations, guidance and guidelines that pathologists need to adhere to do not fit into a neat ethical theory. Instead, the web of established laws, formal rules and guides will likely reflect current thought and the ongoing consideration and debate of competing views and interests. They will continue to evolve and will often reflect changing societal views.

Practical application

So, where to start? Individuals have a role. There is no definitive master rulebook that sets out the 'right' or 'wrong' (or least 'worse') response or approach for every scenario. But how do you best approach ethics in practice?[5]

Be alert

First, be alert to the fact that situations frequently engage ethical considerations and then recognise when they do. This may seem straightforward but sometimes there can be blind spots. These blind spots can be based on our own inherent assumptions, our capacity to see them in pressured settings, the norms and cultures we accept working in certain systems or organisations, and/or the abstraction of the ethical consideration due to the distance from those affected.

Identify ethical issues

Once alert, identify the key ethical considerations. Ethical debates may keep evolving but many of the key considerations remain relatively constant; for example, the 'public good', autonomy, consent (opt-in and opt-out), refusal, confidentiality and privacy.

Many of the ethical tensions and moral concerns run along well-worn tracks. For example, balancing individual interests and public interest, considering competing absolute and qualified rights, and conflicts of interest.

It is often where the balance lies that changes over time – perhaps owing to a novel scenario with different individual considerations or because wider views on where the balances lie have shifted.

Standards, law and gaps in information

Once the ethical issues are identified, consider whether there is guidance, guidelines, standards and legislation (for example, UK-wide or devolved – aspects of medical law are increasingly diverging between the four nations) that apply to the particular situation.

Sometimes these will provide a clear guide on how to act but that does not absolve individuals from stepping back and considering their application in a particular scenario.

Pathologists whose work involves the handling of human organs, tissues and cells should, for instance, be familiar with the relevant guidance

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A diagram to help identify and respond to ethical incidents.

from the regulator, the Human Tissue Authority (HTA), which covers important ethical considerations such as consent.

In some circumstances, further information may also be required. A recurring question in relation to sharing personal data is whether all the data requested or shared is necessary and proportionate to achieve the aim. Sometimes it is clear what must, or can, be shared (under GDPR, the common law and/or professional ethical standards). But, sometimes the law and ethics (an interweaving relationship) is not clear and further information is needed to establish what data must, should and can be shared legally and ethically.

Critical analysis and second opinions

Where the law, standards and guidance do not provide a steer, subject the situation to critical analysis. It may be that further guidance or information is needed. It may be helpful – and in some cases advisable – to seek further advice or a second opinion. This could be informally among peers and colleagues or via other routes.

Opportunities for this may vary depending on your profession and where you work. For example, depending on the situation, doctors can access advice from defence bodies, organisation lawyers, the ethics advisory service at the British Medical Association (BMA), the standards section at the GMC, clinical ethics committees and/or research ethics committees. Who can you go to for ethical advice? Where would you go?

Be prepared to justify

Finally, be prepared to justify your decision to take a course of action, or not take action. This is the case whether the situation appears straightforward or in situations where there is an irresolvable ethical dilemma.

In the latter case, there may be no 'right' response but the process by which someone has arrived at a decision to act in a certain way is important. Have all the relevant factors been taken into account? How have they been weighed against each other? Has the situation been discussed with the appropriate people?

What is on the horizon?

Pathology is a broad specialty. It is core to and underpins many current and future developments that will engage ethical considerations.

There are the big global developments and challenges that raise ethical questions, from ensuring equity and fairness when tackling antimicrobial resistance (AMR) or future pandemics to more futuristic novel developments. Of potential relevance to pathologists, the Nuffield Council on Bioethics' annual bioethics horizon scanning[6] included cryonic freezing after death, microbiome research, biohacking, forensic DNA phenotyping, brain surrogates, fetal tissue research, equity in the development of medicines and therapies, and the culture of research.

Institutions, governments, professional bodies and committees will be grappling with the ethical questions raised by these developments and so will individuals on a day-to-day basis.

References available on our website.

Rebecca Mussell
Lay Adviser, RCPath Lay Network

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Soulsby Foundation 2022 Fellowships in One Health

Call for applications

The Soulsby Foundation recognises the importance of linking human health with animal health as well as the underlying social, structural, economic and environmental factors that determine health and wellbeing outcomes around the globe.

As human populations grow, we live in closer contact with animals giving more opportunities for diseases to spread. Deforestation and intensive arming disrupt our environment and habitats and also provide new opportunities for diseases to pass between humans and animals. Movements of people facilitated by international travel and trade have increased means of diseases spreading more quickly and further.

As our world becomes more interconnected and interdependent, we must consider a wider approach to improving health through multiple disciplines and sectors. The current pandemic has demonstrated how critically important it is to take such a One Health approach.

In this context, The Soulsby Foundation has opened a call for applications for its 2022 Travelling Fellowships Programme. The Foundation supports talented veterinary and medical researchers at an early stage in their careers through these competitively awarded Travelling Fellowships in One Health.

Applicants must be affiliated to a biomedically relevant academic institution in the UK, Europe, North America or Australasia. Further information and an application form may be found at www.SoulsbyFoundation.org.

Don't miss out on the opportunity to apply for a Soulsby Fellowship.

The closing date for applications is 31 January 2022.

Lord Soulsby – a One Health pioneer

The Soulsby Foundation was established in 2016 by Lord Soulsby of Swaffham Prior, a pioneer and champion of the One Health concept which recognises the need to take a multidisciplinary approach to solving global and environmental health challenges.

Lord Soulsby treasured the memory of a travelling award early in his professional life which he considered to be the catalyst that consolidated his future impressive career. He always sought to inspire colleagues and students to view animal and human medicine as one continuous health-related tapestry and, as the only Past President of the Royal College of Veterinary Surgeons (RCVS) to have also become President of the Royal Society of Medicine (RSM), he constantly used this unique position to bring the two professions together.

He died in 2017 but his pioneering approach lives on in the work of the Foundation which carries his name.

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Funding innovation through a CRUK workshop on digital pathology and artificial intelligence

Professor Mark Arends

A workshop on digital pathology awarded three research projects with funding to innovate cancer diagnosis using novel technologies. Workshop director Professor Mark Arends explains the programme and introduces some of the winning researchers – Dr Daniel Royston and Dr Marnix Jansen.

The College hosted the fourth Early Detection Innovation Workshop in November 2019, organised in partnership with Cancer Research UK (CRUK) and Science and Technologies Facilities Council (STFC). This 'sandpit' workshop on research and innovation focused on the development of novel artificial intelligence approaches to interpret digital pathology images for early detection of cancer. Sandpit attendees were invited to form teams to discuss and develop ideas for artificial intelligence-based digital pathology projects over three days. At the end of this period, the teams pitched their ideas to the Workshop Directors and Mentors panel, who selected three research projects to be funded. These three research projects tackled the practical challenges in developing new tools that have the potential to translate into diagnostic and/or surveillance pathways for early detection or early diagnosis of cancer.

The full report is available from CRUK here.

How was the workshop organised?

As Workshop Director, I acted as the leader of the event and guided the process with a focus on the scientific content. I invited Professor Nasir Rajpoot (University of Warwick) to be co-director with me. Together we invited three workshop mentors: Dr Pete Bankhead (University of Edinburgh), Professor Clare Verrill (University of Oxford) and Dr Yinyin Yuan (Institute for Cancer Research, London). This mentoring team played a key role in guiding the participants as they interacted with each other to develop new project ideas.

The mentors acted as real-time peer reviewers, but with a much more creative role. At the start of the event, they encouraged new ideas by asking questions, highlighting ideas that seemed exciting and making connections between participants and the wider body of knowledge. The mentors' role changed towards the end of the process when they were asked to adopt a more critical perspective and assist with the funding decisions.

The sandpit process had several stages:

- defining the scope of the challenge
- sharing the knowledge and expertise brought to the sandpit by participants
- evolving common terminologies among people from a diverse range of backgrounds and disciplines
- breaking down preconceptions of researchers and stakeholders
- taking part in break-out sessions focused on tackling challenges using creative thinking techniques
- capturing outputs in the form of highly innovative feasibility study proposals
- making funding decisions on those proposals using real-time peer review.

Funding awarded

On the final day of the workshop, each group presented their research idea. The Funding panel, comprising the workshop's directors and mentors, awarded the three best proposals up to £100,000 each to support the subsequent pilot and feasibility studies. Commencing in spring 2020 for a period of 12 months, the pilot schemes chosen were as follows:

- Project 1: Team HaemAI – advanced early detection of myeloproliferative neoplasms using digital image analysis, computational pathology and machine learning
- Project 2: Team PathNAV – early detection of pre-neoplastic changes in Barrett's oesophagus using expert-knowledge augmented machine learning
- Project 3: Team PRISM – machine learning for discovery of a pre-neoplastic signature in mesothelioma.

I am delighted to introduce articles by two of the participants of these projects. Dr Daniel Royston discusses his career leading up to the

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HaemAI project, while Dr Marnix Jansen describes his journey from computational pathology to his work in team PathNAV. The COVID-19 pandemic-related restrictions have undoubtedly posed major challenges to progress and I look forward to hearing about plans to re-focus and take forward these important research initiatives.

Professor Mark Arends
Professor and Head of Pathology
University of Edinburgh
President of The Pathological Society

Team PathNAV: diagnosing Barrett's oesophagus pre-cancer with digital data

Dr Marnix Jansen

With a background in computer vision and molecular pathology, Dr Marnix Jansen is part of team PathNAV, which was awarded a CRUK grant to study the use of digital datasets to diagnose precursor lesions to oesophageal cancer.

Late arrival to computational pathology

My group at UCL Cancer Institute has been exploring novel computational histopathology tools to visualise and trace clonal expansions in normal tissues for a number of years; however, I personally came to computational pathology relatively late. I studied medicine and biology in the Netherlands at the University of Amsterdam. After briefly considering a career in neuropathology, I moved to Baltimore to work in the Johns Hopkins pathology department. This is where I first interacted with pathologists who combined clinical work with research. Specifically, I examined precursor lesions to pancreatic cancer in Ralph Hruban's group. The work involved extensive microdissection, lesion grading and old-school Sanger sequencing. We compared lesions across the pancreas as well as between individuals for genetic and epigenetic aberrations. The work was painstakingly slow, but it had all the right ingredients to trace how tissues respond to injury and how clonal selection can drive progression in patients.

After finishing my medical degree, I started my PhD in the lab of Hans Clevers in Utrecht where I worked with others on the LKB1 (Peutz–Jeghers) tumour suppressor. This was a particularly instructive time as there was so much cutting-edge work going on. It was difficult not to be excited about the first time we saw actual stem cells labelled in tissues through the LGR5 marker. Hans is a true visionary who can foresee the possibilities stemming from new discoveries a decade into the future.

After my viva, I moved back to Amsterdam for my histopathology training. Near the end of my training, I spent six months in Tokyo at the National Cancer Hospital in Tsukiji to familiarise myself with the Japanese method for staging and grading early cancers of the upper gastrointestinal tract. In Tokyo, surgical trainees spend a mandatory six-month period in the pathology lab to learn specimen dissection and contribute to multidisciplinary team discussion. Surgical fellows often dissect lymph node stations fresh on surgical specimens. This completely changes and enriches our interaction with surgical colleagues.

At this time, I contacted Sir Nick Wright at Barts Cancer Institute to discuss moving to London. I was awarded an intermediate fellowship by the Dutch Cancer Society and started in Sir Nick's lab in 2017. This is where much of the work from previous years naturally came together. Nick has been a mentor and a friend since. I am currently on a CRUK Clinician Scientist Fellowship, which funds the work in my group at UCL Cancer Institute. I am very fortunate to work with two outstanding computer vision scientists (Dr Panagiotis Barmpoutis and Dr Chen Jin) who have each taken up their own direction of work in the group. We are particularly interested in visualising and quantifying early clonal expansions in epithelia and combining this with molecular evolution studies.

Current outlook in computational pathology

I think this is a great time to be involved in computer vision as a histopathologist. Many of the larger outfits that first jumped to the digitisation of large slide archives have divested from this area since realising the difficulty of building automated disease classifiers. I think this is principally because, although pathologists intuitively know that histology-based diagnostic decisions are subjective and qualitative, those decisions actually take in many more patient-specific variables that are difficult to parameterise beyond those seen in the histological section. This means that if we are to build automated classifiers that are actually helpful in clinical practice, we need to couple slide archives to patient records for deep phenotyping. Obviously, this must be done in ways that are safe and transferable. It is important, in this regard, that recent work by the University of Oxford has highlighted that many pathologists are not familiar with GDPR context or the consequences of data anonymisation choices.

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In this way, app development for routine microscopy has become a lot like drug development in traditional biotechnology, where most of the initial risk is absorbed by smaller start-ups or dedicated digital pathology companies. Ironically, although the argument that many pathology diagnoses are subjective and qualitative has been used as justification to stop training histopathologists, it is much more likely that such opinions reflect a deep misunderstanding of the clinical role of histopathologists and their understanding of tissue injury mechanisms which is difficult to outsource to algorithms.

We must not lose sight of the forest for the trees, though. There is still a lot that can be done to optimise workflows and facilitate human–computer interaction. This is possibly less eye-catching but will undoubtedly change our specialty in ways that are difficult to foresee currently. These technologies will have significant economic impacts as well, particularly with regard to workload and staffing considerations.

CRUK sandpit project: team PathNAV

The sandpit event

During the sandpit workshop, I teamed up with a brilliant group of researchers: Heba Sailem (University of Oxford), Xiaohong Gao (Middlesex University) and Marina Romanchikova (National Physical Laboratory). Together we formed team PathNAV and brainstormed a number of ideas. I had previously been involved in a number of studies where I had been asked to label datasets, either for features or diagnoses. It struck me, during these exercises, that I would follow a similar routine to move through slide datasets quickly. This somewhat recapitulated the feeling of riding shotgun on a doubleheader with a colleague, comfortably driving through the slides to capture the most salient diagnostic elements.

Project proposal

We proposed silent saliency annotation by remotely extracting mouse movements from pathologist observers and set out to apply this to the microscopic diagnosis of Barrett's oesophagus, a common precursor condition to oesophageal adenocarcinoma that affects 1–2% of the population. A large part of the daily workload of dedicated gastrointestinal histopathologists of course involves screening such Barrett biopsies for dysplasia.

Together with colleagues from the Netherlands, I had previously worked on a large-scale Barrett's dysplasia digital pathology consensus study. This work involved more than 50 pathologists from over 20 countries, which generated in excess of 6,000 individual case diagnoses. Large-scale analysis revealed areas of diagnostic variation and defined criteria for guideline formulation of case review. This resource presents a powerful platform to carry out a digital pathology consensus study among a much larger sample of gastrointestinal histopathologists.

We have proposed to leverage this extensive dataset in two ways: first, by quantifying in detail pathologist predictors of diagnostic performance and second, by developing machine learning tools for automated risk stratification of Barrett's oesophagus. To this end, we have developed a web-based digital review environment to automatically log slide coordinate positions, magnification (zoom) level and time stamps as pathologists navigate case slides. This tracking data serves as a proxy for diagnostic behaviour, which, together with the overall diagnostic concordance data, will allow us to develop and train a convolutional neural network for probabilistic diagnostic image analysis.

Project outcomes

This work is currently ongoing. The pandemic has not been kind to us, but we are making progress. I view this study very much as proof of principle; in a setting wherein we understand diagnostic performance (at gold standard level) we can test whether we can train a classifier through silent annotation to recapitulate pathologist performance. I strongly feel that there are many diagnostic contexts where this workflow would be applicable. Participating in the CRUK sandpit was a fantastic experience and has allowed me to work with allied pathologists and computational scientists to drive exciting and innovative project proposals.

Marnix Jansen
CRUK Clinician Scientist and Honorary Consultant Histopathology
UCL Cancer Institute and UCLH NHS Trust

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Team HaemAI: detecting blood cancers with advanced imaging techniques

Dr Daniel Royston

Using his interest in machine learning and artificial intelligence, Dr Daniel Royston, as part of Team HaemAI, gained CRUK funding to study a novel methodology for bone marrow cancer detection.

Professional background

I am an academic pathologist and clinical lead in haematopathology at Oxford's John Radcliffe Hospital. My consultant team provides a large tertiary haemato-oncology diagnostic service to the Thames Valley region. Having qualified in clinical medicine at the University of Dundee in 2002, I commenced my training in histopathology in the South Thames deanery in 2003 prior to moving to the Oxford Histopathology Training Programme in 2004. I was awarded a Clinical Research Training Fellowship in 2006 with the National Institute for Health Research to complete my DPhil, which was followed by an RCPath Jean Shanks Fellowship in 2009.

Following my consultant appointment in 2014, I spent 12 months as an international research scholar in haematopathology at the Memorial Sloan Kettering Cancer Centre, New York. My main research activities concern myeloid disorders, with particular interest in the application of machine learning and artificial intelligence (AI) to the investigation and diagnosis of malignancies involving the bone marrow.

CRUK sandpit project: team HaemAI

Project background

Our project aims to improve the early diagnosis of a group of blood cancers, called myeloproliferative neoplasms (MPN), which are characterised by clonal expansion of terminally differentiated blood cells (white cells, erythrocytes and platelets). Early diagnosis and appropriate treatment of MPNs are important to help prevent and manage early disease complications, such as thromboembolic events (stroke, heart attack and pulmonary embolism) as well as progression to frequently fatal bone marrow failure (due to myelofibrosis) and acute leukaemia.

Currently, the diagnoses of MPNs involve complicated algorithms that include non-specific clinical and laboratory features, along with the interpretation of histological features of bone marrow biopsies. These features can be subtle and difficult to detect, even by experienced pathologists. Advanced tissue imaging techniques, developed by my group and others, are designed to improve the accuracy and sensitivity of diagnostic morphological features in MPNs. Applying these techniques offers the potential to:

1. significantly improve the early management and risk stratification of MPN patients
2. facilitate the efficient use of limited NHS haemato-oncology resources
3. enable novel insights into the disease biology of MPNs and facilitate the development of novel therapeutics.

Novel technology in bone marrow biopsy

In the course of our award, the HaemAI team has developed a novel methodology for the detection and quantification of bone marrow fibrosis in patients with suspected myeloid malignancies. This methodology, employing bespoke annotation software that includes a human-in-the-loop training approach, allowed specialist haematopathologists to rapidly train and validate an algorithm using a large dataset of digital images that captured the full range of reticulin deposition, fibre thickness and intersectional complexity identified in diagnostic bone marrow biopsies. The output from this algorithm has been used to generate a model of bone marrow fibrosis detection that significantly enhances the description of pathological marrow fibrosis and incorporates a mathematical expression of fibrosis heterogeneity expressed as a mean score. This can then be visualised in three-dimensional space, allowing comparison between index samples and cohort libraries.

This approach has been designed to augment current WHO-recommended grading systems for bone marrow fibrosis that are central to leukaemia diagnosis and disease classification in MPNs. Importantly, the automated visualisation of marrow fibrosis allows even non-specialist pathologists to quickly interpret marrow samples. This aids in the quantification of subtle and frequently overlooked fibrotic features. To complement this strategy, we have also refined and expanded the automated objective description and quantification of megakaryocyte cytomorphological and topographical features that are also critical for the diagnosis and classification of MPNs.

Project outcomes

The CRUK sandpit workshop allowed the HaemAI team to build a large image library of bone marrow biopsy images from several national and international MPN trial cohorts. This is a unique and extremely valuable resource that helps validate our

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machine learning-based methods as well as those of other collaborative groups. To date, outputs of this project have been presented at several academic meetings in the UK, Europe and the USA, with our key findings currently being prepared for publication. Importantly, in addition to enabling new academic collaborations with several established MPN research groups, our work has excited interest from industrial partners. Several leading pharmaceutical companies recognise the commercial and therapeutic value of systematically detecting and measuring the morphological correlates of disease response and progression in patients with leukaemia. In particular, the accurate and quantitative detection of changes in longitudinal sequential samples from trial-enrolled patients is critical in the evaluation of novel therapeutic agents, which is often beyond the scope of current diagnostic evaluation by pathologists. Our CRUK-funded machine learning methodologies are ideally suited to these tasks and offer significant promise in future drug discovery and evaluation.

Participating in the 2019 CRUK sandpit

The CRUK sandpit workshop was a new experience for me. The use of creative and somewhat unconventional activities encouraged participants to think in novel and imaginative ways. I had the opportunity to meet and interact with diverse groups of clinicians and scientists with interests in pathology, oncology and AI. I also enjoyed the opportunity to meet with a panel of experts and guest speakers with backgrounds in the fields of digital pathology and AI.

Through a range of challenging and thought-provoking group activities, participants were encouraged to develop solutions to the problem of early cancer detection using the application of AI. This proved to be fun, challenging and rewarding, although sometimes a little stressful. Towards the end of the workshop, certain core concepts and themes crystallised between participants. This ultimately led to the formation of our HaemAI collaborative group with members from five academic institutions in the UK. Our group comprises pathologists, biomedical engineers, AI experts and even a physicist.

Next steps

The HaemAI team formed during CRUK's sandpit workshop has used the generous funding support to recruit a full-time postdoctoral student. Their work in little over 12 months has already resulted in the development of a machine learning model that has direct application to early blood cancer detection and classification using bone marrow biopsy material. It has also supported the refinement and validation of other complementary machine learning algorithms. Taken together, this CRUK sponsorship has led directly to a novel collaborative program of work that will soon be submitted for publication. We are also in the process of securing direct support from at least two industrial partners. HaemAI's collaborative work has been extremely rewarding and enjoyable; new, exciting collaborations with clinical and academic research groups in the UK, Europe and the USA are set to mature and develop into the future.

Dr Daniel Royston
Consultant Haematopathologist & Senior Clinical Lecturer
Oxford University Hospitals NHS Foundation Trust

Maternal death and autopsy over 70 years: a professional and personal overview

In this article, the authors look back over 70 years of the confidential enquiries into UK maternal deaths and provide personal views on their autopsy work.

Professor Sebastian Lucas

In the years 1952–1954, with the first UK confidential enquiry report into maternal deaths published in 1957, the maternal mortality rate was 99 per 100,000 births; today, it is one tenth of that rate. Virtually eliminated now are deaths from unsafe (so-called 'criminal') abortion. Hypertensive disease deaths (eclampsia) are but a fraction of what they were – marking progress in both parliamentary legislation and clinical care. Conversely, it was only in the 2003–2005 triennial report that sudden arrhythmic cardiac death syndrome with a morphologically normal heart (SADS/MNH) entered the statistical tables. Up to then, pathologists did not recognise the entity, although it was obviously

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The commonest causes of maternal death in the 21st century in UK.*

1. Cardiac disease – myocardial abnormality, coronary artery disease, SADS/MNH

2. Neurological – subarachnoid haemorrhage, stroke, epilepsy

3. Infective causes – obstetric sepsis, influenza, COVID-19

4. Deep vein thrombosis and pulmonary thromboembolism

5. Psychiatric – suicide, drugs and alcohol toxicities

*Further details can be found in the 2021 MBRRACE reports.

SADS/MNH: Sudden arrhythmic adult death syndrome with a morphologically normal heart.

always there. Now it is among the commonest fatal maternal pathologies, which underscores progressive specialisation in morbid anatomy and the spread of knowledge, plus the fact that the other causes of death have declined in proportion.

Pathological input into the triennial reviews commenced in the 1976–1978 report. The Chief Medical Examiner had written in the previous report: '*The importance of accurate diagnosis of cause of death becomes greater as the number of deaths diminish. [Autopsies, mainly coronial] were carried out on 344/390 [88%] deaths investigated, but [all the assessors] have expressed concern that the reports available were not as helpful as they might have been*'. Plus ça change. Prof Ian Dawson started, emphasising the pathologist's reliance on histopathology and experience, and concluding '*...he owes a duty to his obstetric and anaesthetic colleagues and most of all to the husband of the patient to provide as far as he can an adequate explanation for the death*'. He was followed in later reports by Professor John Tighe.

For many years, Dr Harry Millward-Sadler was the pathology case reviewer, writing trenchant pathology sections, focusing on substandard autopsy practice and reporting. In the 1997–1999 report, he highlighted the 'appalling' standards seen in maternal autopsies from London areas. He attributed this to the deaths being examined in public mortuaries, without clinical liaison, by visiting pathologists who knew nothing about maternal death, directed solely at excluding forensic causes. The result? I realised that here was an opportunity to create a specialist centre (at St Thomas' Hospital), and gradually persuaded the coroners in London and the South East to refer their material death autopsies to us. We now have a team of three consultants with a collective experience of nearly 300 cases to date.

After the last triennial report, covering 2006–2008, the Healthcare Quality Improvement Partnership (HQIP) appointed MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK) to run the confidential enquiries. There are now shorter, annual reports with rolling epidemiological data, and multidisciplinary reviews of specific maternal disease syndromes. The aim is to attain the most accurate possible data on causation and to seek remediable factors to prevent such deaths in the future.

Importantly, when maternal deaths are reported to MBBRACE, the initial review includes one of the pathology team looking at the clinical and autopsy reports (>80% of maternal deaths in UK still result in an autopsy), to check that the proffered diagnosis is correct and adjust it if necessary. All the reports since 2014 are available on the MBRRACE website.

Professor Sebastian Lucas
Lead Pathology Assessor for MBRRACE
Dept of Cellular Pathology, Guy's and St Thomas' NHS Foundation Trust

Dr Samantha Holden

Investigating post-mortem practices

I have been performing maternal death post-mortem examinations in Southampton for over ten years, although, of course, the actual numbers of cases I have performed are low. I am a paediatric and perinatal pathologist but had a varied training background that has been very helpful when undertaking these cases. I started reviewing cases for MBRRACE in 2016 and have more recently become involved in the teams assessing overall findings for the annual reports.

Post-mortem pathology can be fairly isolating – other than HM Coroner's Inquest or local multidisciplinary team meetings, there is little overview or discussion about the findings. Review of anonymised post-mortem reports along with the background history for MBRRACE has not only increased my knowledge around maternal death, but has enhanced critical overview of my own post-mortem practice. As part of the review, we feedback good and less good practice – and, sadly, in some cases, poor practice – to the wider group. As pathologists, we concentrate on the pathological aspect of each case, but our colleagues from other fields have a similar overview for their specialty.

When collating the annual MBRRACE reports, themes from each specialty are considered – for pathology, in many cases, post-mortem examinations have been performed satisfactorily. However, in our reports, we are able to identify areas where improvement can be made. Most recently, in epilepsy-related deaths, failure to follow the Royal College of Pathologists' guidelines was identified

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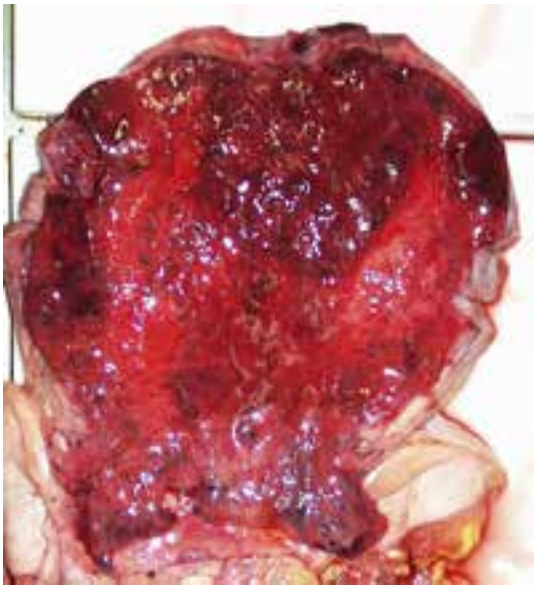

Group A Streptococcus endometritis: inflamed uterus and generalised sepsis.

and associated recommendations were made. MBRRACE is also ideally placed to recognise trends in relation to new and emerging diseases, such as the recent reports into SARS-CoV-2-related and -associated maternal deaths. Being part of the MBRRACE process helps me to feel less isolated in my practice and, very importantly, be part of team trying to ensure future investigation of maternal deaths is performed to a high standard.

Dr Samantha Holden
Pathology Assessor for MBRRACE
Dept of Pathology, Southampton General Hospital

The benefits of collaboration

Dr Simi George

I have been performing maternal death post-mortem examinations since 2014. To date, I have conducted 33 maternal death post-mortem examinations. Of these, 27 have been directly or indirectly related to pregnancy.

Being the most junior member of the maternal death team at St Thomas', I took instruction initially from my senior colleagues before embarking on doing these cases solo. I think this is very important since without their expertise and experience, I would not have been in a position to carry out and be confident in performing these types of post mortems. I also think working alone without colleagues to bounce ideas off is a dangerous practice.

The most important aspects of carrying out maternal death post-mortem examinations are the attention to detail and scrutiny required. More often than not we are provided with detailed clinical histories and hospital records are made available readily.

Very similar to doing paediatric post-mortem examinations, we are expected to undertake appropriate ancillary investigations – a luxury sometimes lacking when doing adult post-mortem examinations.

Occasionally, when the sequence of events is unclear, input from our clinical obstetric and gynaecological colleagues is invaluable. We have at times met to discuss the sequence of events leading to death, which can sometimes be down to the physiological response during pregnancy to an insult. It is often better appreciated and understood from the clinical side, and this is an invaluable learning experience for any pathologist.

I am now assigned maternal death cases to review for MBRRACE. While the majority of the post-mortem examination reports are done to a high standard, there still remains parts of the country where these examinations are not performed by pathologists experienced in maternal death and the cause of death is dubious or frankly incorrect.

Coronary artery dissection causing myocardial infarction. Important to distinguish this from usual coronary artery thrombosis.

Dr Simi George
Pathology Assessor for MBRRACE
Dept of Cellular Pathology, Guy's and St Thomas' NHS Foundation Trust

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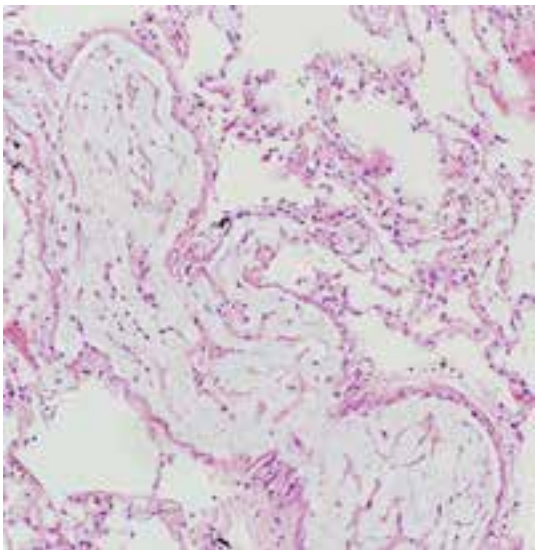
How pathologists' reports benefit multidisciplinary teams

Dr Esther Youd

My work with MBRRACE-UK began by a chance encounter over dinner. It was after a scientific meeting in Cardiff where Sebastian Lucas was invited to speak. I was a young, keen consultant and had always been interested in maternal deaths, since working with Harry Milward-Sadler as a first year senior house officer in Southampton.

Reviewing autopsy reports and clinical notes is the routine part of the role. We examine the given cause of death and identify any areas for improvement of the autopsy practice, as well as areas of learning.

But the most valuable part is the chapter writing – meeting up with colleagues from different medical, nursing and midwifery fields as a multidisciplinary team (MDT), to draw together the learning from three years of data, focusing on a single topic, e.g. cardiovascular deaths, thromboembolism, psychiatric, sepsis. These intensive MDT discussions draw out the learning from individual and collective deaths in order to compile the annual report. Messages for pathologists are identified and, as such, the annual MBRRACE-UK report is well worth reading for all autopsy-active pathologists. Although the dataset is maternal deaths, often the messages for pathologists are relevant across routine autopsy practice.



Lung with amniotic fluid embolism – squames and amniotic fluid mucus in pulmonary arterioles (H&E).

Despite the lack of oversight of coroner's and procurator fiscal autopsies, this peer review process organised by MBRRACE-UK is an example of how pathologists' autopsy reports are studied by others. Even if you don't undertake maternal death autopsies, this still applies to you – there are situations where you may not be aware of recent pregnancy, or pregnancy loss, when undertaking the autopsy.

Thankfully, maternal deaths are rare, but every one is potentially devastating; the loss of a young woman, with impacts for an unborn child, new baby, partner and young family. The proper investigation of these deaths is something we must do well as pathologists, as their final advocate.

Dr Esther Youd
Pathology Assessor for MBRRACE
Dept of Forensic Medicine and Science, University of Glasgow

The importance of maternal autopsies

Dr Ula Mahadeva

In 1938, in a village in northern Sri Lanka, a woman died, bed-bound, a few weeks after fitting during childbirth of her second son. The death, like too many in Sri Lanka over the years, was accepted as part of life – uninvestigated, unaudited and unnoticed by all except her family. Six years later her husband died of tuberculosis, and the three orphaned boys were taken in by an uncle. The middle of these three brothers, decades later, became my father. During the ethnic civil war he emigrated with my mother, as professionals, and their children to England. I grew up in England from the age of eight. I was always grateful to this foreign land, where death was locked away in the attic and rarely had to be taken down and dusted off, which schooled me and put me through medical school at little cost to my parents.

Although I rarely thought about the grandparents I never knew, even during my training as a histopathologist, I began to carve out an interest in infectious disease histopathology, with the unformed intention of one day being of help to a country more in need than England.

Around 2006, a few years into my substantive consultant post at Guy's and St Thomas' NHS Foundation Trust (GSTFT), Professor Lucas one day came into my office and said, 'I need someone to cover me with the maternal death autopsies … I am asking you because you are the most obsessive person I know in the department'. I took the backhanded compliment, and started doing maternal death autopsies. For the next few years I discussed all the cases with him, as he did with me when he wanted another opinion. Up until then I had avoided coronial autopsies, knowing that they would not satisfy my need to get to the bottom of things. Maternal death autopsies were different to other coronial autopsies, in that everyone was driven to understand as much as possible about why the woman died, including the patient's

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partner/family, the healthcare professionals/institutions, the coroner and the national maternal death auditors (currently MBBRACE).

Of course, as every autopsy-active pathologist will know, the autopsy is still a fairly crude tool, and we can't always find the answer. I enjoy the intellectual challenge of building up the complex layers of information (macroscopic findings, haematoxylin & eosin histomorphology, histochemical special stains and immunohistochemistry, clinical information, multi-header microscope discussion with our GSTFT maternal death autopsy consultant team, expert clinical opinion from an obstetric physician, literature consultation, etc.) in pursuit of the answer. As long as there aren't too many insoluble cases in a row, I do not get demoralised. This requires more undisrupted time than a busy NHS practice can afford, so I find that my thinking and report writing inevitably get relegated to outside routine working hours. The risk factors for maternal death in the UK (including social deprivation, non-white ethnicity, immigrant status, illicit drug abuse, domestic violence and obesity) hint that these are invariably women who have not had the best of anything in their lives, and I try to, at least, provide my best opinion.

After acting as an MBBRACE assessor for many years, I decided to leave this role. The NHS was unable to support me with either its IT capabilities or time to do the online assessments on the MBBRACE website from work, often requiring going through hundreds of pages of half legible and malorientated clinical notes. After assessing a series of deaths of women who were murdered by their partners, committed suicide and/or were failures of the social care system in this country since their childhoods, I finally decided that I needed to protect my sanctuary from these harrowing realities of life.

I continue to do maternal death autopsies because every case is tragic – the death of a woman who was (invariably) looking forward to bringing a new life into the world and nurturing it. I feel for their partner who, in addition to coping with their grief and loss, may be trying to look after a newborn baby as well as older children. I anticipate that the children one day will want answers. From a worldwide perspective maternal death is overwhelmingly a problem of resource-poor countries, and doing maternal autopsies keeps me feeling like a global pathologist. I have not forgotten the grandmother I never knew and could not help.

Dr Ula Mahadeva
Consultant Histopathologist and former Pathology Assessor for MBRRACE
Dept of Cellular Pathology, Guy's and St Thomas' NHS Foundation Trust

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The College's Diamond Jubilee – join in with our programme of events and activities

Penny Fletcher

Professor Sarah Coupland

Throughout this year, we'll be celebrating 60 years of the College. Find out how you can get involved!

The Royal College of Pathologists was founded on 21 June 1962. In 2022, we're marking our Diamond Jubilee and we are keen to include all our members in our many planned events.

We are delighted to be hosting a College Open Day on the actual day of our 60th anniversary in June (see below). There are many other activities being launched throughout the year including a monthly podcast series; virtual cycle, run and walking challenges; a classical concert in Liverpool; named lectures covering a broad range of pathology topics in all nations; and various outreach activities, including a UK tour of Suzy Lishman's 'Living Autopsy', an event in Welsh at the National Eisteddfod and a Pet Portrait Photo Competition. These are all in addition to our usual essay, science communication and art competitions.

Members are also encouraged to celebrate the Diamond Jubilee with their own events – there are lots of activity ideas, materials and resources via links on the Diamond Jubilee webpage. Our 'tagline' for the year is 'Pathology: at the heart of your health' and we have created a special logo featuring this to use at all Diamond Jubilee events. You can download this here. The year of activity offers a fantastic opportunity to highlight the vital role that pathology, pathologists and clinical scientists play in human and animal health.

Open Day – 21 June, London

The College building in London will be hosting a whole day of celebrations on 21 June 2022, including hands-on activities for local school students, an exhibition of many of our specialties as well as pathology-related companies, and a drinks reception on the Terrace. We are hoping for a royal visit. Another highlight of the exciting one-day programme will be the 2022 Foundation Lecture, which will be given by Professor Sir Jonathan Van Tam. Further information about how to attend or get involved will be shared with members in due course.

National Pathology Week 2022

National Pathology Week (NPW) 2022 is our annual awareness week, which was established in 2008. To coincide with the College's actual 60th anniversary, NPW 2022 will take place in June for the first time in its history (20–26 June). Moving NPW to the summer offers our members and supporters the chance to run outdoor events in their local community, and to help spread the word that pathology is at the heart of everyone's health. The theme of NPW 2022 will be 'Pathology: Past, Present and Future'. We've got lots of ideas and resources to help you with your events. If you would like to get involved, please contact the Public Engagement team.

Events and activities for members

Virtual challenges and a bespoke cycle challenge

As part of the Diamond Jubilee celebrations, the College is organising a bespoke Land's End to John O'Groats (LEJOG) cycle ride as well as several virtual challenges. Anyone can join in with these and we're inviting members who sign up to get their friends and family involved too.

The three-month virtual challenges starting on 1 March offer a great way for members and friends to fulfil their New Year's resolutions to keep fit and

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to take part in the Diamond Jubilee from your own home or in your local area. They also provide a good opportunity to train for the in-person LEJOG cycling challenge. We've got three route options to choose from and you will receive regular motivational updates on your progress. The challenges organised are:

- Run Dublin to Londonderry: discover the delights of Ireland as you journey from Dublin to Londonderry
- Cycle Land's End to John O'Groats: be immersed in some of the best scenery the UK has to offer on this iconic cycling challenge.
- Walk the Pembrokeshire Coastline: walk a truly wonderful trail of tracks through a bewildering array of natural and stunning coastlines.

To sign up for a virtual challenge, register on the Cancer Research UK website before 27 February. There's also further information about all of the challenges on our website here.

The in-person LEJOG cycle ride is being organised by Cycle Retreats together with CRUK and the dates for this are 13–24 September 2022. To register for this exciting challenge, please email RCPath Vice President for Communications Professor Sarah Coupland: s.e.coupland@liverpool.ac.uk.

Classical Concert – Liverpool Philharmonic Hall

On 28 May a special classical music concert will take place at the Liverpool Philharmonic Hall to mark the College's Diamond Jubilee. Tickets are on sale on the Liverpool Philharmonic Hall's website. All are welcome and early booking is recommended.

The College has been allocated some tickets, and two will be available in a free draw for College members. The raffle tickets will go on sale soon – look out for announcements on our website and in the President's newsletter.

Regional events

The College's regional councils each put together a programme of activities aimed at members and stakeholders for the Diamond Jubilee year. These will appear on the regional map and include lectures and symposia. All the regions will host at least one Named College Lecture. Booking information will be added to our Conferences page when speakers and abstracts are confirmed.

Other events and activities

Pathologists in Profile podcast

The College has launched its first podcast! Following the release of a successful pilot episode featuring Professor Sarah Coupland in November, Pathologists in Profile will be a series running every month of our Diamond Jubilee year. The podcast will feature a range of inspiring people working across the 17 different pathology specialties. Each month we'll be releasing two episodes, featuring the same guest speaker. In part one, we will explore the life and career of our podcast guest, and in part two, we'll be delving into a case study chosen by our guest. Find out more and listen to the episodes so far here.

Other public events

In addition to NPW, there will be a range of events for public audiences around the UK throughout 2022. You can see all of these in our public event listings. Highlights include several RCPath Book Club events, a nationwide tour of Dr Suzy Lishman's Living Autopsy and a series of outreach events for school students aboard the 'MELISSA' Bus.

Competitions

Most of our annual competitions will also be themed around the Diamond Jubilee. The theme of our 2022 Art of Pathology competition is 'Pathology: Past, Present and Future' and our essay prizes for undergraduates and Foundation doctors will both focus on the advances made in pathology over the last 60 years. We're also relaunching our Science Communication Prize to mark this special anniversary year.

Get involved on social media

Please share photos and videos of your Diamond Jubilee activities and events on social media. If you're on Twitter and Instagram, use the hashtag #RCPath60. The College will also be running a President's Pet Portrait Photo Competition on Twitter to coincide with National Pet Month 2022 between 1 April and 3 May. Open to all, the competition will offer prizes for the cutest pet and also the pet that looks most like their owner. There'll also be a special category for veterinary undergraduate students, and we will use the competition to highlight the essential work of our veterinary pathologists.

Follow us on Facebook, Twitter and Instagram for the latest updates on the celebrations.

Penny Fletcher
Public Engagement Manager

Professor Sarah Coupland
Vice President for Communications

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All Together Now: National Pathology Week 2021 round-up

Penny Fletcher

Thadcha Retneswaran

National Pathology Week 2021 ran from 1 to 7 November and our 'All Together Now' theme inspired a diverse range of events, activities and social media posts.

To engage the nation with pathology during last year's National Pathology Week (NPW), the College provided a programme of online events and a range of support materials for our members. Our theme, All Together Now, aimed to explore pathology in diverse and creative ways. We invited our members to highlight how teamwork and collaboration help them to deliver the incredible work they do in our healthcare system, and how the 17 pathology specialties work together to diagnose, prevent and treat diseases.

RCPath Book Club event: *Ten Drugs*

The College-led programme kicked off with an RCPath Book Club event. Around 80 people joined the event, which featured Ten Drugs: How Plants, Powders and Pills Have Shaped the History of Medicine, a book by medical journalist and author, Thomas Hager. The expertise on the panel for this discussion event was wide-ranging. The chair was College Fellow, Nigel Brown, who is a consultant clinical scientist in analytical toxicology and deputy examiner in clinical chemistry for the Institute of Biomedical Science. Nigel was joined on the Book Club panel by researchers and healthcare professionals from a diverse array of organisations, including the Royal Horticultural Society and the Royal College of Physicians. The topic and content of Hager's book sparked fascinating discussions between panellists, who also answered questions from the online audience. You can find out more about the panellists and watch the recording of the event on the RCPath Book Club page.

Events for students

Events for students included a medical ethics discussion workshop for medical students in collaboration with the Social Mobility Foundation and a veterinary pathology workshop for secondary school students with the Royal Veterinary College (RVC) on 2 November. Three College histopathology members were part of the facilitator team at the medical ethics workshop and veterinary pathologist Dr Pamela Kelly from University College Dublin gave a fascinating talk on her work and career as part of the RVC event.

With a secondary school audience in mind, our series of virtual pathology careers talks kicked off on the Wednesday of NPW. Histopathology members Dr Varuni Fernando and Dr Veronica Moyo and haematology registrar Dr Mahesh Patel were our first trio of speakers on Wednesday 3 November. Our virtual session on Friday 5 November featured talks from histopathology members Dr Alex Willsher and Dr Zoe Rivers, and infectious diseases and medical microbiology trainee Dr Hamed Sharaf. More than 100 people attended these two events, including schools who were live-streaming the session and individual school students joining from home. There were excellent questions for our

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speakers and over 95% of attendees who filled in the post-event feedback forms said they had learned something new. All speakers at these events attended our online public engagement training earlier this year.

Harvey's Gang

On the Wednesday evening of NPW 2021, the College was delighted to host a special webinar with Malcolm Robinson, the founder of inspirational charity Harvey's Gang. A former biomedical scientist, Malcolm supports pathology teams around the UK and beyond to set up tours of hospital labs for children being treated for serious illnesses like blood cancer. Now running at over 100 hospitals around the world, Harvey's Gang tours offer pathology teams an amazing opportunity to increase involvement and knowledge of patients and their families. Around 30 attendees joined the Harvey's Gang webinar, and all those who filled in the post-event feedback form rated the event as five out of five. One commented: 'Thank you, a very thought-provoking talk; Malcolm is an inspiration'.

The Exeter Medical Leadership and Management Student Society ran events for undergraduates and the public.

Virtual pub quizzes for undergraduates

We welcomed undergraduates studying medicine, biomedical science and veterinary medicine for our 'Virtual Pub Quizzes' on the Thursday and Friday of NPW. Students were tested on their knowledge of several areas of pathology and veterinary pathology at each event in a number of question rounds kindly put together by College members from around the UK. Attendees at both quiz nights were welcomed by College President, Professor Mike Osborn.

The medical and biomedical student quiz on 4 November was hosted by neuropathology trainee and academic clinical lecturer Dr Matthew Clarke, and healthcare scientist and stand-up comedian Kip Heath. Hosts of the veterinary pathology quiz were Professor Rob La Ragione, professor of veterinary microbiology and pathology, and Dr Nicola Parry, head of pathology for the Department of Pathology and Infectious Diseases. Both are based at the University of Surrey School of Veterinary Medicine.

Our new podcast series: Pathologists in Profile

On the Friday of NPW 2021, we launched the Pathologists in Profile podcast – two pilot episodes of this new series were released. They feature interviews with consultant histopathologist and College Vice President for Communications Professor Sarah Coupland. The podcast series, hosted by histopathology trainee Natasha Cutmore and sponsored by Cirdan, will feature inspiring people working across the 17 different pathology specialties. Each month from January to December 2022, we'll be releasing two episodes, featuring the same guest speaker. In part one, we will explore the life and career of our podcast guest, and in part two, we'll be delving into a case study chosen by our guest.

Supporting member-led events

The College's Public Engagement team supported members and other organisers to run in-person events around the UK and beyond with free promotional materials, event promotion, and a range of downloadable guides and activity resources. Our social media channels were buzzing with fantastic photos, videos and posts of support during the week. These included events run by recipients of our Public Engagement Innovation Grant scheme event, such as a series of events for undergraduates and the public in Exeter, which was organised

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by the Exeter Medical Leadership and Management Student Society, and the Disease Detectives After-School Science Club run by grant recipients Sciencedipity.

Members were also invited to share photos and videos of themselves and their teams in our #AllTogetherNow Twitter photo and video competition.

National Pathology Week 2022

National Pathology Week 2022 will run from 20 to 26 June, as part of the College's 60th Anniversary celebrations. The theme will be Pathology: Past, Present and Future.

Penny Fletcher
Public Engagement Manager

Thadcha Retneswaran
Communications Officer

Celebrating pathology through our Art of Pathology competition

Thadcha Retneswaran

Last year's Art of Pathology competition celebrated teamwork and collaboration across the pathology specialties. Take a look at the 2021 winners and discover more about this year's competition.

Each year, the College encourages adults and children to explore pathology using any artistic medium of choice for our Art of Pathology competition. In 2021, the theme was All Together Now, celebrating teamwork within the 17 pathology specialties, as well as collaboration with other healthcare professionals and patients.

We received a record number of submissions from the UK and abroad across the three age categories (under 11s, 11–17 and over 18s). Many of these centred around the work of pathologists and other members of the healthcare team during the COVID-19 pandemic. Others chose to focus on the ways in which pathologists investigate, diagnose and treat diseases. Over a third of the entries were from artists based outside the UK, including the USA, Mexico, Peru, India, Pakistan, Sri Lanka, Thailand, Singapore, Australia, Greece, Turkey and South Africa.

Thank you to everyone who took the time to submit their artwork and to the judges – Vice President for Communications Professor Sarah Coupland, Clinical Director of Publishing and Engagement Dr Shubha Allard and science-based artist Dr Lizzie Burns.

Congratulations to all the winners, runners-up and commended entrants from last year's competition. The three winning entries from the under 11s, 11–17 and over 18s categories are shown below.

This year's competition

This year's Art of Pathology competition will be opening shortly with a new theme to mark the College's 60th anniversary – Pathology: Past, Present and Future. Budding artists are welcome to interpret this theme however they wish. For example, why not explore the progress within pathology and healthcare, highlight key discoveries that have changed the course of medical history, depict inspirational pathologists or even look ahead at what the world of pathology may look like in centuries to come?

More information will be added to our Art of Pathology competition page soon. In the meantime, you can also check out all the winners, runners-up and commended entries from previous years. We look forward to seeing your artistic creations.

Thadcha Retneswaran
Communications Officer

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Under 11 category winner: 'The Pathology Microscopic Fighters' by Layla Minett, UK

I've drawn the pathology people microscopic in the blood like antibodies, teaming up to defeat the bacteria and viruses like COVID-19 and cure diseases. The swords represent the different tools they use to do it like microscopes, blood tubes and vaccines.

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11–17 category winner: 'Unity' by Mereena Pun, UK

On the closing page of 2019 to the early light of 2020, the world was thrown into silence and separation. Yet through the unity and cooperation of humankind, we have fought against COVID-19 and broken through the darkness. Pathologists are the beginning of this chain as without their hands in diagnosing the disease and developing the treatment, humanity would've not stepped forward to the light.

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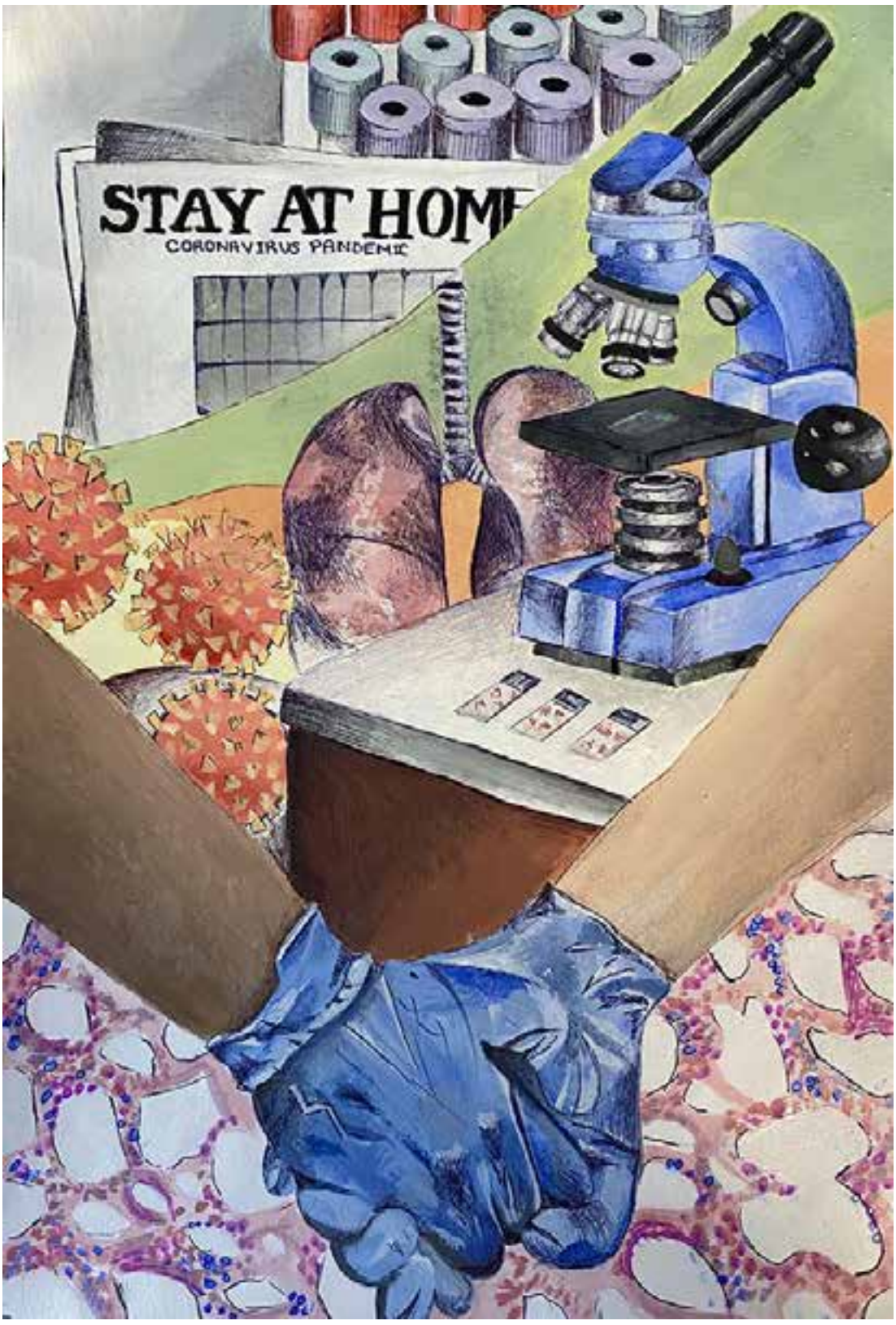

Over 18 category winner: 'Against it All' by Weronika Kukulska, UK

With a focus on the COVID-19 pandemic, I tried to encapsulate the theme with two pathologists holding hands, facing their challenges together. I've combined representations of the pandemic and pathology itself to display the role that pathologists have played in our advancing knowledge of COVID-19.

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Cultivating connections between the Royal Horticultural Society and the College

Alistair Griffiths

Lauriane Suyin Chalmin-Pui

There is increasing evidence of the positive effect that gardening has on health and wellbeing. Following the opening of a new science centre, the Royal Horticultural Society examines the effect of green spaces on our health and the potential for collaborating with College members.

Introduction

Beyond the direct medical consequences of coronavirus infection, the lockdowns of the past two years have had enormous social and mental health impacts for us all. Some have quarantined in large houses with private outdoor gardens, while others have been stuck in small spaces devoid of nature. Regardless of where we have been confined, most of us sought refuge in nature, public parks and gardens. A survey from the Horticultural Trades Association found that there were almost three million new gardeners in the UK in 2020. Over half of these were under 45 years old.

This is very welcome news from a health perspective because gardens and gardening can help promote good health. Physiologically, an individual's health is determined by their physical cells, organs, genetics and biochemical processes, alongside the availability of oxygen, water, food and shelter. Yet health is not a purely physical function. The World Health Organization defines health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. Human health and wellbeing are also influenced by an individual's behaviours and lifestyle as well as broader socioeconomic, political, cultural and technological structures.[1] These wider determinants of health are embedded at all scales of built, social and natural environments.[2,3] From the global climate to soil quality and from street design to social care, health is determined by a nested variety of factors. This structure is shown in Figure 1.

The effects of gardening on health

There is a growing body of evidence for the positive effects of gardening on mental, physical and social health.[4–6] Gardens and gardening have been strongly associated with increased psychological wellbeing,[7–9] lowered risk of mental illness,[10,11] improved physiological stress regulation,[12] a stronger sense of community and belonging,[13] reductions in self-harming,[14] and higher self-esteem and pride.[13,15] A randomised controlled trial looking at the effects of greening vacant land on adult mental health found that self-reported feelings of depression and worthlessness were significantly reduced.[16] It also found that levels of violent crime came down; greening blighted and vacant urban land affected people's perceptions of safety as well as their actual physical safety.[17] In broad terms, nature can contribute to good health through three main pathways: reducing harm, restoring capacities and building capacities.[18]

The impact of gardening has been linked to beneficial health-related outcomes, such as increased physical activity and social contacts, physiological stress regulation, and improvements in emotional states and cognitive capacity. This is further detailed in Figure 2. An increasing number of physicians in the UK are prescribing gardening to patients, under the umbrella of 'green social prescribing'. Notably, Professor Tim Kendall, NHS England National Clinical Director for Mental Health, is an advocate for the benefits that gardening provides for people with mental health challenges.

Further research needed: a possible role for pathologists?

Gardening has not yet been directly linked to improving disease states or reducing mortality. For instance, the intricacies of the relationships between urban greenery and asthma or dementia have not yet been ascertained. This could, in part, explain the reluctance of some physicians to acknowledge gardening and other nature-based activities as health and social care for patients. This is, therefore, where pathologists could usefully apply their expertise to research the health pathways that link regular nature exposure to disease states. For example, a recent trial found that manipulating the environmental biodiversity of playgrounds (e.g. covering the floor with forest soil) during a 28-day intervention led to changes in children's skin and gut microbiota as well as blood immune markers.[19] This suggests that the intervention enhanced immunoregulatory pathways and could reduce the risk of immune-mediated diseases. We would welcome and encourage any collaborative or interdisciplinary efforts to bridge these gaps to further build on the medical benefits of gardening on human health.

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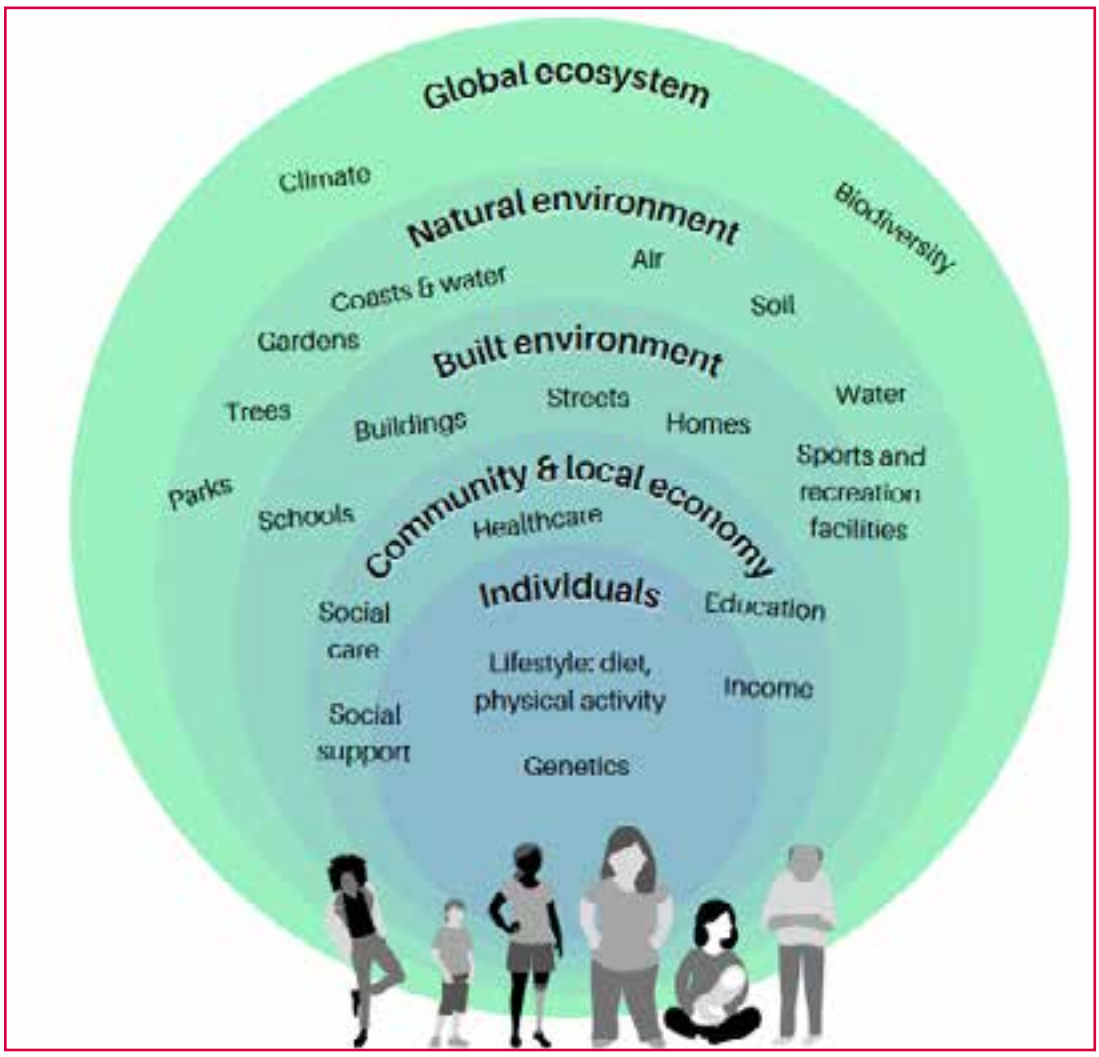

Figure 1. The determinants of health. Diagram adapted with permission from Barton & Grant, 2006.

Further strengthening research and education at the Royal Horticultural Society

Science has always been firmly at the heart of the Royal Horticultural Society (RHS). Its founding purpose is to improve the science, art and practice of horticulture. This objective has guided RHS activities throughout its history and translates to its modern vision of enriching everyone's life through plants, making the UK a greener and more beautiful place. The key issues facing us today include:

- climate change, extreme weather events and increasing demand for water
- biodiversity and habitat loss, species extinction and negatively impacting pollinators
- increasing biosecurity risks such as pests, diseases and weeds
- poor connection with nature and decreasing social, mental and physical wellbeing
- reduced spaces for growing and reduced resources, due to population growth and increasing urbanisation.

The RHS Plant Finder estimates that there are 400,000 different types of plants in UK gardens. Consequently, The RHS Science Strategy guides us in our scientific activities by concentrating on three themes to improve the health of people, plants and planet:

- garden plant diversity: optimise the genetic potential of garden plants. There is a higher diversity of plants in UK gardens than those used globally for food or medicinal use.[20–23]
- plant health: healthy plants, gardens and wildlife to maximise their environmental and health benefits
- environmental gardening for wellbeing: minimise resource use and waste while maximising the role of plants, gardens and gardening in improving social, physical and mental wellbeing.

The RHS has long sought to bring together scientific research, their collections, education and public engagement in one place. To that end, in June 2021, the RHS opened the new £35 million centre of excellence at the RHS Wisley Garden, Surrey, called RHS Hilltop, the Home of Gardening Science. This new centre includes a brand new visitor centre and research library, along with inspirational spaces for events, exhibitions, interpretation of science, networking and conferences.

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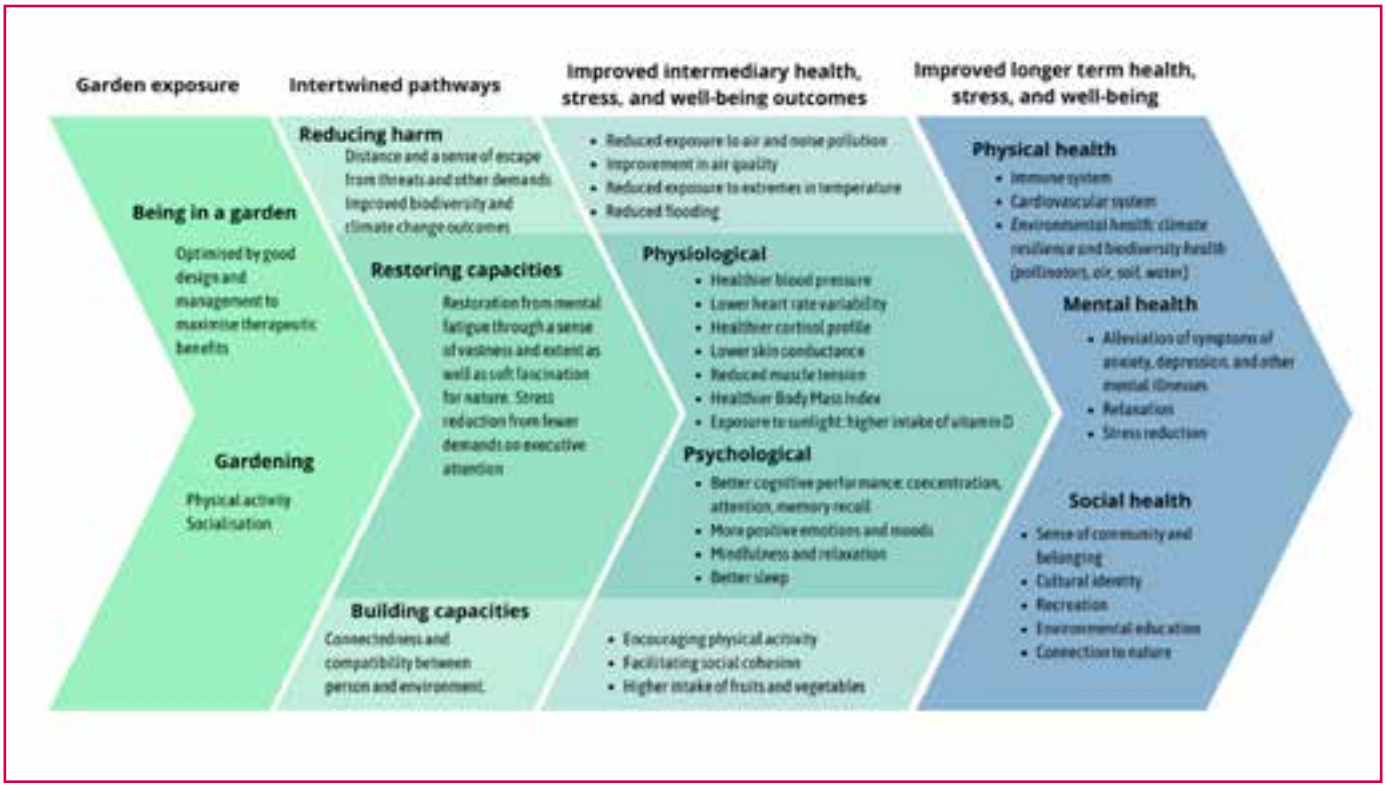

Figure 2. Pathways from garden exposure to improved longer term health.

The building is surrounded by three new gardens: Wellbeing, Wildlife, and World Food. These gardens provide 'living laboratories' designed for teaching and directly involving the general public, RHS members, communities, and primary and secondary school visitors in our research. For example, the Wellbeing garden provides a living laboratory for understanding the effect that various colours, scents and features in gardens have on our emotions and wellbeing. This will contribute to the evidence base for our Blueprint for Wellbeing Gardens, part of the RHS' Sustainability Strategy. There are also indoor studies running in the exhibition space, as well as an area for experts to speak. Here, RCPath has already kindly animated two sessions on the Power of Plants, which looked at dietary sources of iron. Other outreach activities have included botanical art workshops for people suffering from post-traumatic stress disorder, in addition to frequent primary and secondary school visits.

Conference on Health and Horticulture in March 2022

The Hilltop will also host a Conference on Health and Horticulture organised by the RHS on 17 and 18 March 2022 as part of an effort to bring together horticulturists, planners, designers, healthcare professionals and policymakers. The aim is to positively affect health and wellbeing and to tackle the decline in green space in the UK. This could be related to green social prescribing, as well as ensuring that access to mental healthcare, green spaces and gardens (indoors or out) is as inclusive as possible. The RHS wants to promote specific actions that support healthcare professionals and the government to increase the use of horticulturally based health interventions. Keynote speakers include Rebecca Pow MP, Terry Hartig, Clare Cooper Marcus, Lord Nigel Crisp, Craig Lister, and Hugh Barton. Please do get in touch if you are interested in joining us.

References are available on our website.

Alistair Griffiths
Director of Science and Collections
Royal Horticultural Society

Lauriane Suyin Chalmin-Pui
Wellbeing Fellow
Royal Horticultural Society and University of Sheffield

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Promoting pathology as a career to final year undergraduate medical students

To encourage students to become pathologists, the College held a careers event covering five of the field's specialties. Here, Catherine McIlroy from the University of Buckingham takes us through the day.

An online pathology careers event was jointly arranged by the College, the University of Buckingham (UoB) and Milton Keynes University Hospital (MKUH) on 9 September 2021. It was attended by UoB final year medical students and hosted by Dr Farhan Ahmed, consultant chemical pathologist at MKUH. Students were welcomed enthusiastically by College President, Professor Mike Osborn.

The event was a fantastic learning opportunity, as pathology underpins all of medicine. Pathologists across all pathology specialties play a vital role in patient care. Professor Osborn directed us to the College website for more information on career paths and training requirements.

The benefits of a career in pathology include a choice of location extending worldwide, a healthy work–life balance, flexible working patterns and, finally, the absence of an on-call rota for many specialties. It sounds almost too good to be true!

What did we learn about?

The event covered five pathology specialties.

The first talk, on clinical immunology, was delivered by Dr Nicholas Peters. He described the role of a clinical immunologist and outlined the entry criteria and career path. He discussed his duties, the advantages and disadvantages of his specialty, and why he chose it. He commented on the supportive learning environment and abundant research opportunities, stressing the importance of having a great work–life balance.

Next, Dr Afsheen Wasif, a consultant cellular pathologist, explained how histopathology influences patient management and care, highlighting the need for excellent communication skills and teamwork. Dr Wasif emphasised the attention to detail needed in this role, as disease diagnosis and staging depend on extremely high accuracy. She expressed the benefits that flexible training provides to her personal life.

The third session was presented by clinical pathologist, Dr Nishan Guha. He stressed the importance of his colleagues – clinical and biomedical scientists – and how this multidisciplinary team liaises between clinicians and biochemical testing. He explained that this small specialty has a lot of variety, including seeing patients in clinic, supporting clinicians with advice and developing new diagnostic tests.

Dr Magbor Akanni discussed haematology with us. A broad understanding of medicine, empathy, professional flexibility and good communication skills are all important attributes to possess in this specialty. Outlining her daily work, Dr Akanni also described the two main groups of patients, those with malignant or non-malignant pathology, and described the routes to develop in subspecialties.

Professor Mike Osborn introduces the pathology specialties to the students, joined by event host, Farhan Ahmed.

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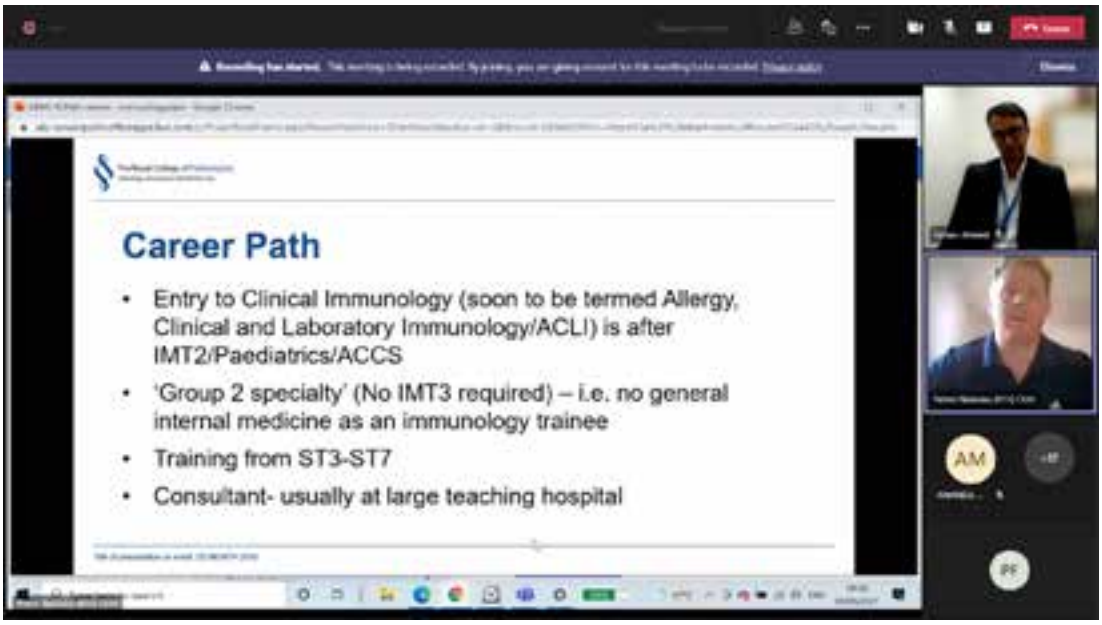

Dr Peters outlines the career path necessary to become a consultant.

The final presentation was delivered by consultant Dr Prithwiraj Chakrabarti on microbiology. He gave us an overview of his core activities, including ward rounds and consultations, infection services, running a quality-assured laboratory, antibiotic stewardship, and infection prevention and control. He spoke passionately about microbiology, emphasising its clinical importance, balanced with an explanation of the challenges faced.

Impact of the talks

In summary, the speakers at this event provided honest, balanced, informative accounts about their career pathways, their roles and responsibilities, the advantages and disadvantages, and their experiences of being a pathologist.

As students, we learn about biochemistry, immunology, haematology, histopathology and microbiology in the classroom, but we experience little to no time with clinicians in these roles. The careers session provided valuable insight to the various specialties that are available in pathology. I feel motivated and inspired to research a career in pathology after attending this careers event, and will consider gaining experience in pathology during my foundation training.

One overriding message that I have taken away from the session is that, on the whole, pathologists are a happy bunch of people. They appear to have their work–life balance sorted which, for me, is a hugely important factor when I consider where I want to be in ten years' time. Clearly, this isn't the only factor one wishes to consider when planning a career path, but it certainly has provided me with food for thought.

Catherine McIlroy
Final year medical student
University of Buckingham

Dr Chaktrabarti discusses his working life as a microbiologist.

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International Pathology Day 2021

Kelley Price

International Pathology Day 2021 focused on the implementation of digital pathology and artificial intelligence, and how this will aid international collaboration. Here, Kelley Price, the College's International Projects Officer, provides an overview of the day.

International Pathology Day (IPD) is an opportunity for members and non-members to come together to share experience, knowledge and ideas. Now in its eighth year, the essence of IPD – international collaboration to address global health issues and improve outcomes – has never been more important.

On 10 November 2021 at 10am we launched IPD 2021 with a welcome from the College President Professor Mike Osborn. This year's event was again sponsored by Sonic Healthcare UK and launched in collaboration with our partner the British Society for Hematology. For the second year running, we live-streamed the event to a global audience, with more than 95 people joining us. People joined from locations in Europe, the Middle East and North Africa (MENA), South East Asia, sub-Saharan Africa and Western Pacific. The College is proud to say they have members and people from all regions of the world with a keen interest in what we do.

Universal access to high-quality diagnostic services

Academician Professor Lai-Meng Looi, Malaysia's inaugural National Distinguished Professor and Consultant Histopathologist at the University Malaya Medical Centre, opened the morning's talks by discussing the findings of *The Lancet* Commission on diagnostics. This work was commissioned to examine the shared challenges of pathology and laboratory medicine and digital imaging services with the aim of recommending transformational step-changes necessary to ensure optimal quality diagnostic services for universal health coverage globally. A multidisciplinary team of 25 commissioners from 16 countries was commissioned to undertake the work.

Key findings included identification that nearly 50% of the global population has essentially no access to diagnostics and that the investment case for diagnostics is strong. Besides detailed insights into the current status of diagnostics and gaps in the cascade of care, mechanisms for solutions include innovations in technology (including digitisation and artificial intelligence), education and financing.

There were ten recommendations, ranging from international policy actions to a putative list of essential diagnostics for primary care level. Crucially, diagnostics and diagnosticians have been effectively invisible to decision-makers and funders. These recommendations require debate and there needs to be agreement on concerted action by the diagnostic community itself before buy-in can be achieved among policymakers.

Whole-slide imaging scanning technology for primary diagnostic use within low-resource settings

Dr Leah Mnango, a pathologist working at Muhimbili National Hospital, Dar es Salaam, Tanzania, presented a detailed account of an important project she is part of to validate the use of the Alexapath whole-slide imaging (WSI) scanning technology for primary diagnostic use. Further specific objectives include assessing the quality of microscopic glass slide and scanned digital images, the accuracy of diagnosis established on scanned images compared with glass slides, and the feasibility of using the Alexapath WSI scanner for diagnostic use within low-resource setting, such as Sub-Saharan Africa.

Practicing deep medicine in smart hospitals

Dr Abdelghani Tbakhi's talk on what the future of healthcare might look like in years to come gave us time for reflection and thought. Dr Tbakhi is a Consultant, Molecular and Immunopathology, and Co-Director of the Cancer Care Informatics Program at King Hussein Cancer Centre, Amman, Jordan. The King Hussein Cancer Centre established and delivered an MSc programme in Cancer Care Informatics, which is the first international MSc program. The program holistically empowers students to pratise deep medicine in smart hospitals and advance cancer care through the use of informatics. The philosophy of this novel program, along with its vision, mission and learning outcomes, gave us a glimpse into an exciting future.

Artificial intelligence for pathology

Professor Nasir Rajpoot, Professor of Computational Pathology at the Department of Computer Science Department, University of Warwick, took us on a fascinating exploration into how the increasing number of digitised NHS pathology labs in the UK is providing valuable pathology image data with

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linked clinical outcomes. Professor Rajpoot explained that this data is a potential goldmine of invaluable information, ripe for deep mining of novel digital histological biomarkers of the 'state of play' of complex diseases such as cancer. One of the next steps is to consider how these digital histology biomarkers can further our understanding of cancer, stratify patients into different risk groups and predict the progression and survival of cancer.

Lunchtime activities

During lunchtime, a range of activities were on offer, including a poster competition that showcased wonderfully inventive research ideas and projects. Professor Jo Martin provided a demonstration of the College's upcoming Pathology Portal, which the College has developed together with Health Education England (HEE).

The Portal is an innovative adaptive learning platform to support trainees and practising pathologists in digital learning. Furthermore, there was a podcast-style interview with Associate Professor Clare Verrill and guest Dr Yuchun Ding, founder of X-WOW, which could be enjoyed while people lunched.

Our poster competition winners

Announcement of the competition winners is possibly one of the most eagerly awaited parts of the programme, especially for the 13 entrants that had poured their time and energy into creating their submissions. Dr Rachael Liebmann, OBE, Group Medical Director for Sonic Healthcare UK, had the honour of revealing the winners.

The winners were selected by a panel of judges that included Professor Ismail Matalka, RCPath Clinical Director of International Activities, Dr Hebah Ali, RCPath Education Lead for the Sponsorship and Histopathology International Trainee Support Schemes (ITSS), and Dr Yuchun Ding, founder of X-WOW and Data Scientist at Cambridge University. The winners of the IPD poster competition are given below.

First prize: 'Social media for public education about pathology' by Zulda Musyarifah, Dr M Djamil General Hospital, Padang, West Sumatra, Indonesia.

Second prize: 'Reviewing the results of the first large-scale genomic study (deciphering developmental disorders) in Wales' by Nayanatara (Naya) Poobalan and Dr Andrew E Fry, School of Medicine, Cardiff University, and All Wales Medical Genomics Service, University Hospital of Wales.

Third prize: 'Implementation of an online microbiology referral pathway in a hospital trust – a quality improvement report' by Dr Kim Pramanik, Microbiology Department, East Lancashire Hospitals NHS Trust Histology Department, University Hospitals Leicester, Dr Sandra Long, Dr Nurul Amir, Dr Giuditta Sanna, Dr Hisham Ziglam and Dr Luca Kormos.

The roundtable

The roundtable topic for IPD 2021 was 'Can digital pathology break down international borders?' The roundtable provided information and opinions that were thought-provoking and considered how we can achieve sustainable digital practice globally, the future of telepathology and whether digital pathology can tackle inequalities in healthcare provisions.

Many thanks to the panel who discussed these questions and more, and brought their vast experience in diagnostics, digital pathology and telepathology to the table. The panel included Professor Mike Osborn, Dr Abdulaziz Al Ajlan, Dr Bethany Williams, Professor Naresh Kikkeri, Dr Peter Carey and Dr Betmouni.

Catch up with what you missed or listen again

All four morning talks, the lunchtime activities, including the demonstration of the College's upcoming Pathology Portal and the podcast-style interview, and the roundtable discussion are freely available to watch on demand from our website. You can also enjoy browsing impressive IPD digital poster competition entries.

Worldwide IPD celebrations

Our appreciation goes out to everyone who got involved last year. Whether you took to social media using the #IPD2021, celebrated from your lab, or organised an in-person or virtual event like Helwan University, Shefa Al-Orman Charity Hospital and Modern University of Technology and Information Medical School Egypt. Thank you for your support.

This year's celebrations

On 1 November 2022 we will host a special event for International Pathology Day. It is being held earlier than the official day of celebration, which is Wednesday 9 November. More details will be available late summer.

Kelley Price
International Projects Officer

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Blood Assist: Patient Safety Innovation of the Year finalist

Anne Davidson

Andrea Marshall

A new app designed to aid the safe practice of blood administration reached the finals of the Health Service Journal's Patient Safety Awards 2021.

Blood Assist is a blood administration safety app developed by the Patient Blood Management (PBM) team at NHS Blood and Transplant (NHSBT). It is designed for healthcare professionals in England to support the safe and appropriate use of blood components in adult patients. The app is easy to use, accessible and intended for use by the patient's side at the time of transfusion. A web-based version is also available.

Background

Transfusion practice remains a highly regulated and monitored practice within healthcare settings but, despite this, the last 20 years of documented error reporting by the Serious Hazards of Transfusion (SHOT) UK haemovigilance scheme continues to highlight potentially fatal errors. Early recommendations from SHOT stated that the bedside check is vital in preventing transfusion error but, in 2020, there were seven ABO-incompatible red cell transfusions due to clinical error.[1] Additional near-miss data suggests that these are just the tip of a much larger problem, which demonstrates the importance of appropriate patient identification throughout the transfusion process.

The Blood Assist app title page.

Transfusion-associated circulatory overload (TACO) and other pulmonary complications are the most reported cause of major morbidity and death in transfused patients. SHOT recommends that a formal pre-transfusion risk assessment for TACO should be undertaken whenever possible. The national comparative audit of TACO (2017) included 2,461 inpatient and 2,119 outpatient transfusions in patients over 60 years of age.[2] Only 20.5% of inpatients were risk-assessed for TACO; fewer still were assessed between units or had haemoglobin checks, despite 89.2% of patients having at least one risk factor for TACO in addition to age.

Initial work with stakeholders in 2018 identified clinical barriers that had a significant negative effect on the implementation of patient safety recommendations. The PBM team used this information with the evidence from the 2017/2018 SHOT reports as a driver to explore the development of a clinical tool. The tool aimed to promote best practice and minimise the effect of human factors on transfusion safety.[3,4]

The PBM practitioner team was commissioned to develop a resource to support healthcare professionals involved in the administration of blood components and the care of patients during transfusion.

Development

The project's aim was to provide an 'aide memoir' transfusion resource, available within NHS trusts as the go-to reference for best practice in bedside blood administration. The primary objective of the app was to improve transfusion safety with a secondary focus on education. It needed to be accessible, up to date and credible. A digital format was required to meet these aims and objectives, thus Blood Assist was conceived. Blood Assist is a smartphone application that would be available at the patient's side at any point in the transfusion process. The hope at this stage was that, as well as individuals downloading it to their personal devices, the app could be downloaded centrally by NHS trusts and then uploaded to electronic bedside devices where available.

The content summarised current national guidance from the British Society for Haematology (BSH), recommendations from SHOT and the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO), and consent legislation. Blood transfusion guidance is extensive and complex. For staff unfamiliar with transfusion or for those

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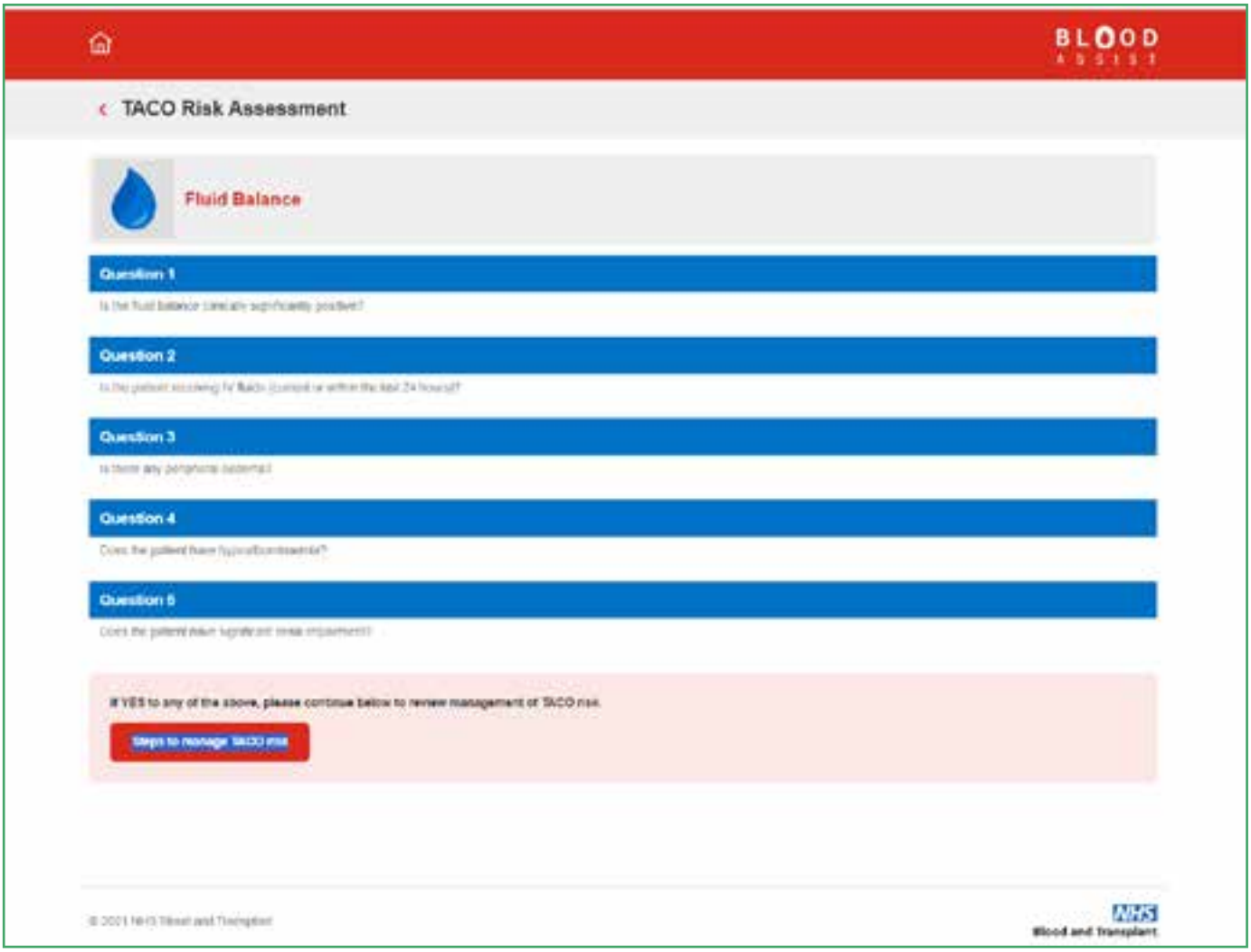

TACO risk assessment questionnaire on the Blood Assist app.

redeployed into a different working environment, as during the pandemic, it can be overwhelming and difficult to interpret in an acute clinical setting. This presents an increased risk to the patient and the potential for inappropriate blood component use. The intention was to pull the key messages and safety points from the guidance and present them in a simple and intuitive format, reducing ambiguity and risk of misinterpretation.

Blood Assist menu screenshot.

The content and format were agreed with subject matter experts and stakeholders, including biomedical scientists, nurses and clinicians. This feedback also led to the additional development of a web-based version of the app that can be accessed or embedded on any device to support training and education.

To fit with the intuitive interface and maximise the user experience, the content was categorised into eight sections covering the administration process. Key sections on positive patient identification, compatibility and TACO aim to support implementation of the SHOT recommendations from 2017[3] and 2018.[4]

A full quality review and validation process followed, before our external digital developers HMA began to build the app. Once complete, a robust quality testing process was instigated, interrogating the app's functionality and reliability. This directed a series of amends and retests before final approval.

At the final stage, we engaged with two stakeholder sites to clinically assess the functionality within the clinical setting, gathering crucial service user evaluation. Calderdale and Huddersfield NHS Foundation Trust and Mid Yorkshire Hospitals NHS Trust kindly agreed to complete this critical stage of the process by piloting the app and web version. The pilot phase highlighted some technical accessibility issues requiring resolution prior to launch.

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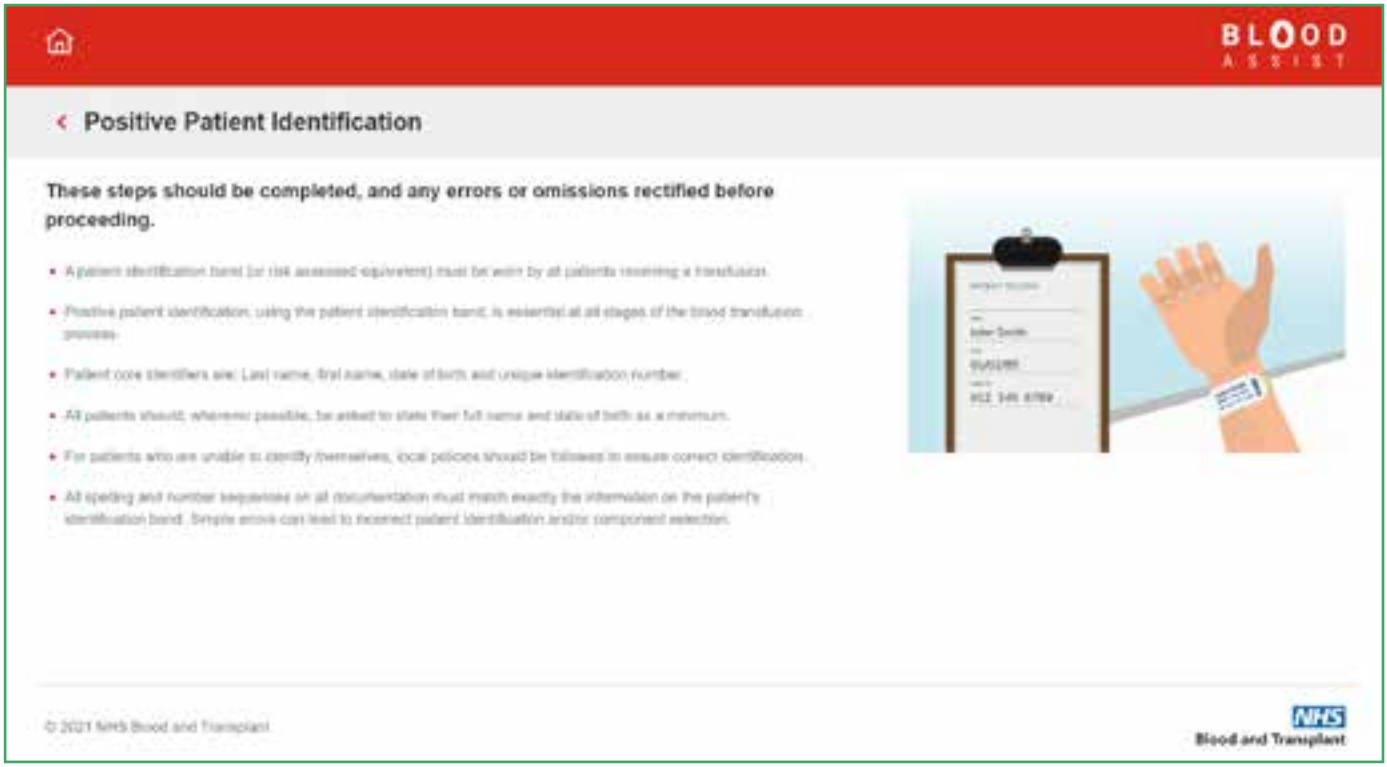

The webpage that appears when a positive patient has been identified.

Launch

Blood Assist was launched in February 2021 and has recorded over 12,000 downloads and website hits. Several UK NHS trusts have downloaded the app centrally and the website has been incorporated into hospital transfusion education programmes. There has been engagement from unexpected areas, including hospices and the NHSBT Red Cell Immunohaematology (RCI) laboratory, which has incorporated the app into training programmes. The app has been accessed globally and requests have been received for translated versions from other European countries.

The app was shortlisted by the Health Service Journal's Patient Safety Awards 2021 for the Patient Safety Innovation of the Year category. It is endorsed by SHOT and actively promoted by the Royal College of Nursing and NHS England.

Summary

The popularity of Blood Assist has exceeded all expectations. The immediate engagement from clinical areas indicates that a transfusion safety resource was well overdue. The success of this app can be attributed to its simplicity and format: a simple, intuitive and accessible digital resource that aims to support staff and improve patient safety.

NHSBT continues to work with SHOT, the Department of Health and Social Care, and the National Blood Transfusion Committee to promote best practice and patient safety within transfusion.

The app is available free to download from app stores and can be downloaded centrally by trusts for use on bedside devices. The app complies with NHSBT's quality standards and has no associated information governance concerns since no patient data can be submitted.

The app is also available as a web version at www.bloodassist.co.uk.

Acknowledgements

This resource is the culmination of the work of many and we would like to express our thanks to all those who supported and contributed to its development. Thanks to HMA, our digital developer, to David Melia, Director of Nursing & Quality/Deputy Chief Executive, and the team at Mid Yorkshire Hospitals NHS Trust, Dr Pnt Laloë, Consultant Anaesthetist, and the team at Calderdale and Huddersfield NHS Foundation Trust, all of whom are committed to patient safety and innovation and have been enthusiastic supporters of the project throughout.

References available on our website.

Anne Davidson
Patient Blood Management Education Lead
NHSBT

Andrea Marshall
Patient Blood Management Development Manager
NHSBT

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Appreciation: Dr Maria Helena Gilleece (1959–2021)

Maria graduated from Liverpool in 1984. She was no ordinary student, winning scholarships and prizes, and intercalated with honours in biochemistry. She embraced university life and was a keen member of the renowned Liverpool Medical Students' Society and, in her capacity as secretary, edited its long-running publication Sphincter.

Her interest in haematology was apparent from early on in her medical training. In 1989, she became a haematology registrar at the Royal Liverpool Hospital. From there, she moved to Manchester's Paterson Research Institute (now the CRUK-MI) for four years of research. She remained in the North West as a Senior Registrar, completing her specialty training and MD thesis.

In 1997, she crossed the Atlantic to take up a two-year Kay Kendall Leukaemia Fund fellowship at the prestigious Dana Farber Cancer Institute in Boston. This was followed by a spell as a visiting research fellow in Brisbane linked to the University of Queensland.

Maria returned to the UK in the year 2000, taking up the role of the Bone Marrow Transplant Fellow at London's Hammersmith Hospital under the supervision of John Goldman. She then spent four years as a Consultant Haematologist at Gwynedd Hospital before her appointment as a consultant in Leeds in 2005. There she joined the transplant team, eventually taking over as Head of Service in 2010 – a role she would fill with authority, skill and compassion until this year, when her illness made it impossible for her to continue. It is notable that so many of the people she worked with stayed constant companions throughout her journey. The team she led was a source of long-term friendship as well as professional collaboration.

Maria contributed to the transplant community nationally and beyond the UK. She was closely involved with the British Society of Blood and Marrow Transplantation (BSBMT), establishing the BSBMT newsletter while serving as a valued member of the executive group. She also contributed regularly to the work of the European Blood and Marrow Transplantation organisation and was a founding member of the International Academy of Clinical Haematology.

Maria had a lifelong interest in medical education. From her undergraduate days to the end of her career, she was an active and vocal representative at training forums and introduced educational materials through her links to national societies and the royal colleges. She was an examiner and teacher,

instrumental in the introduction of new staffing groups such as physician associates and advanced clinic practitioners. This innovative and people-centred side to Maria was much admired and an example of her concern for others and how their working lives might be improved.

In her personal life, Maria had a wonderful ability to keep in touch with the friends that she had made from school, through her work at home or abroad and in her hobbies such as the book club she was so fond of. She was instrumental in organising school and medical school reunions, thoroughly enjoying those opportunities to catch up with friends.

In her work, Maria was a collaborative colleague and source of wisdom and support to all who were lucky enough to come across her. Her honesty and integrity were a blessing in a sometimes-cynical world. Through her life experiences, and her extensive literary hobby, she found humour in times of darkness and shone a light for all. She bore the illness that finally took her from us with a grace, humour and quiet fortitude typical of her character. It goes without saying that she will be truly missed by patients, colleagues, friends and family. She leaves a gap in our lives, but we take some comfort in her now being at peace after such a brave fight.

This article has been adapted with permission from Wiley (Johnson R. In memory of Dr Maria Helena Gilleece. British Journal of Haematology).

Dr Rod Johnson
Consultant Haematologist
Leeds Teaching Hospitals NHS Trust

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College Fellow awarded international prize for health and development research

Professor Sir Ali Zumla has recently been awarded the EU-EDCTP Pascoal Mocumbi Prize in recognition of the impact his work has had on African healthcare and health services.

In a prestigious award ceremony hosted in October 2021 by the Mozambiquan President, His Excellency Filipe Nyusi, Sir Ali received the EU-EDCTP Pascoal Mocumbi Prize. The award was given in recognition of Sir Ali's scientific research, health services capacity building, and training and advocacy achievements in Africa. It celebrates a career spanning over 30 years.

Throughout his career, Sir Ali focused on improving infectious disease treatment, health services and the lives of poor and disadvantaged populations worldwide. Sir Ali has driven forward numerous international initiatives to tackle poverty-related and infectious diseases in Africa and beyond. He has been responsible for the development of equitable south–north partnership models in which researchers across multiple continents collaborate on research, capacity building and empowerment of local researchers in Africa.

His work has led to breakthroughs in tuberculosis, TB/HIV co-infections and infectious diseases with epidemic potential, as well as improvements in the health of disadvantaged populations. His work was noted as having had 'a significant impact on the wellbeing of the African population'.

During his acceptance speech, Sir Ali said: 'I feel extremely humbled and honoured to receive this very prestigious prize. Prizes do not reflect individual efforts alone. I would thus like to dedicate this honour to my family, staff, teams, friends and colleagues from across the world who I have had the privilege to work with on a range of research, capacity development, advocacy and charity activities.'

The Pascoal Mocumbi Prize is awarded every two years to a scientist, policymaker or advocate in recognition of their outstanding work in health research. It is named after Dr Pascoal Mocumbi, a former Prime Minister of Mozambique, who championed research partnerships between European and African nations. The prize is organised by the European and Developing Countries Clinical Trials Partnership (EDCTP), a collaboration that encourages the development of new medicines to aid against infectious diseases such as HIV/AIDS, malaria and tuberculosis.

Sir Ali is Professor of Infectious Diseases and International Health at University College London (UCL), Consultant Infectious Diseases Physician at UCL Hospitals NHS Foundation Trust and Co-Director of PANDORA-ID-NET, a project that responds to emerging infectious epidemics in Africa. As an author of over 20 textbooks and contributor to hundreds of publications, he is in the top percent of most-cited researchers in the world. Sir Ali was awarded his Knighthood in 2017 for services to public health and protection from infectious disease.

The College congratulates Sir Ali on his achievement.

Sir Ali (centre) with colleagues from the PANDORA-ID-NET team.

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The College presents the Percy Lane Oliver Memorial Award to Dr Stephen Thomas

Dr Stephen Thomas

As the well-deserved recipient of the 2021 Percy Lane Oliver Memorial Award, Dr Stephen Thomas explains the story of his outstanding contribution to blood and transfusion science over the last 30 years.

It is a great honour to have received the Percy Lane Oliver award and I am very grateful to the College. I am surprised to find that I have spent 30 years working on blood and transfusion, and I find myself asking how I got here and what have I done to deserve this honour.

First steps

Well, in case you are interested, I originally wanted to be a vet but didn't get the O-level grades to even apply. I worked harder for my A levels and I could've enrolled in medical school but didn't really want the responsibility of treating people. Instead, I enrolled on a biology degree at the University of Nottingham, which became zoology by the time I had specialised in physiology. This included a dissertation and project on artificial blood substitutes – the first steps on this path.

Luckily, I immediately got a graduate job as a scientist in the Division of Haematology at the National Institute for Biological Standards and Control (NIBSC), where I worked for 13 years performing batch release testing of medicines such as plasma products manufactured by Bio Products Laboratory. I was fortunate to be able to pursue a part-time PhD on platelets, plasma and coagulation in an in vitro flow system. This was followed by a short secondment to the Australian Centre for Blood Diseases in Melbourne to learn about their real-time imaging of in vitro coagulation – a fantastic experience supported by NIBSC and the British Heart Foundation.

On my return, I moved to NHS Blood and Transplant (NHSBT), where I have been for the last 16 years in various roles. I began as manager of the Component Development Laboratory, then became Safety Programme Coordinator where I was the secretariat for the Advisory Committee on the Safety of Blood, Tissues and Organs (SaBTO) and other groups, while also working on clinical governance projects including in organ donation.

I then acted as Head of Manufacturing Development before becoming Associate Director of Technical and Scientific Development. An unplanned course, perhaps, but an interesting and rewarding one, for which I remain very grateful to all my teachers (my parents included), managers, mentors and colleagues.

Advancing blood and transfusion standards

I can't claim to have ever made a scientific breakthrough. I have always admired research scientists who read journal articles, piece together a hypothesis, design a project, gain funding, prove or disprove a theory, publish the findings and repeat the cycle. However, I realise that I am not one of them. I was a decent bench scientist but never had that level of insight. My work has probably delivered more incremental advances.

My most useful contributions to practical transfusion science are probably the publications and guidelines on how donated blood and its manufactured components can be handled to ensure they retain their quality – a transfusion of damaged components will do more harm than good, and no one wants to waste usable blood. Work on the effect of temperature excursions on the quality and safety of red blood cells led to an evidence-based change from the historic '30-minute rule' to an evidence-based '60-minute rule'. I have also been an advocate for the appropriate and careful handling of platelets. I hope that this work helps to make better use of the donor's gift while ensuring that the patients receive good quality transfusions.

As a member of SaBTO, I have contributed to some significant reviews of safety measures and have learnt a huge amount from the expert contributions of other members. Examples include the recommendation to implement hepatitis E virus screening for all donors, and the recent recommendation to cease the importation of plasma and use of apheresis platelets as variant Creutzfeldt–Jakob Disease risk reduction measures. The latter is a very complicated and emotive subject, but safety measures do come at a cost. It is appropriate to review whether the risks are still as significant or whether they have diminished over time and whether the money could be better spent elsewhere in the healthcare system. Similarly, being deputy director of the Joint UK Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee also affords me a view across transfusion and tissue transplantation practice in

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the UK with the responsibility of developing guidelines that ensure safety and quality.

Achievements with NHSBT

Currently, I feel really privileged to lead the Technical and Scientific Development team in NHSBT. This comprises a team of experts that implements new processes and equipment to be used from donation to delivery. I also work with the Microbiology Services Laboratory, which performs specialist screening and confirmatory testing of blood and non-blood donations along with a valuable validation and development service.

Over the last five years, the Manufacturing Development team has upgraded most of the equipment NHSBT uses to convert blood into components – the blood packs, transport containers for the donated blood, centrifuges, semi-automated presses and rapid plasma freezers. The team also supports R&D, for example the use of a whole blood component in trauma, and major new developments such as convalescent plasma (CVP) and plasma for medicines (PfM).

The Testing Development team played a huge part in the early response to the COVID-19 pandemic, releasing one of our large nucleic acid analysers to support the national testing effort and taking on some testing for the Welsh Blood Service so they could do the same. We also established third-party testing for the antibodies required in CVP collected for the clinical trials, then implemented the testing in-house, before supporting the transition to PfM. The team is now working hard to catch up with the resulting backlog of projects. Over the next couple of years, we will be upgrading the microbiology, blood grouping and bacterial screening equipment in the testing laboratories.

The IT Development team is integral to all this work, designing and testing software processes that ensure the correct tests are requested on each sample and the correct results are received and assigned so that the blood components may be validated and released.

Looking to the future

In the years ahead, I think we will continue to struggle with the balance of providing the highest quality components while trying to keep our costs as low as possible. There will be a tension between the desire for 'universal components' that hospitals can use for any patient regardless of blood group, versus the trend for personalised medicine tailored to the individual patient. Innovative new processes will rarely be cheaper than our current processes, and even logical, incremental changes can be difficult to justify when resources are limited.

One example is the additive solution used to store red cells (saline, adenine, glucose, mannitol, or SAGM) which has been in use for decades even though other solutions are available that are known to keep red cells in better condition. We may soon see a change here, but only because, owing to environmental concerns, regulators are phasing out the plasticiser in the current blood packs that has a beneficial side effect on red cells. This means that a better additive solution may now be essential; 'doing the right thing' sounds simple but the practicalities can be difficult and costly.

We also need to recognise our impact on the environment and consider what we can do to minimise single-use plastic and carbon emissions from our manufacturing and testing operations. I would be keen to hear suggestions on what people think the next generation of blood pack might look like – this might be an area where an incremental change is not enough.

Dr Stephen Thomas PhD, FRCPath
Associate Director – Technical and Scientific Development
NHS Blood and Transplant

Deaths reported to Council

The death of the following Fellow was announced at the 18 November 2021 Council meeting. We extend our condolences to those who grieve for him.

David John Anstee, Bristol, UK

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Consultants: new appointment offers

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 submitted by Friday 17 December.

Please note, we receive no return following 20% of AACs. Any forms received after Friday 17 December 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
West Midlands	University Hospital of North Midlands and East and Mid Cheshire	across sites	Dr Alaa Abdelrazik

Haematology appointments

Region	Employing body	Base hospital	Appointee
North, Central and East London	Barts	St Bartholomew's	Dr James A Aries
			Dr Johannes W de Vos
North West London	Imperial	Hammersmith	Dr Andrew J Innes
South London	King's College	Denmark Hill	Dr Roochi Trikha
			Dr Mili N Shah
South West	NHS Blood and Transplant	Flexible base	Dr James E Griffin
Wessex	Portsmouth	Queen Alexandra	Dr Thomas Cummin
	University Hospital Southampton	University Hospital Southampton	Dr Ana Monteiro Barros e Carvalhosa
West Midlands	George Eliot	George Eliot	Dr Imran Manjra
Yorkshire and The Humber	Leeds	St James's	Dr Simon J Bulley

Histopathology and cytology appointments

Region	Employing body	Base hospital	Appointee
Kent, Surrey and Sussex	Royal Surrey	Royal Surrey	Dr Janine Warnick
North, Central and East London	University College London	University College London	Dr Vidhya Manohar
Northern Ireland	Belfast Health and Social Care	Royal	Dr Kristofer Holte
	Western Health and Social Care	Altnagelvin	Dr Ali Ben-Mussa
South London	Guy's & St Thomas'	St Thomas'	Dr Eglantine Lebas
Thames Valley	Buckinghamshire	across sites	Dr Sukhvinder S Ghataura
Wales	Aneurin Bevan	Royal Gwent	Dr Anne-Marie H Toms
West Midlands	University Hospitals of North Midlands	Royal Stoke	Dr Daniel A Brett

Paediatric pathology appointments

Region	Employing body	Base hospital	Appointee
North West London	Great Ormond Street	Great Ormond Street	Dr J Ciaran Hutchinson

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Medical microbiology, communicable disease control, virology and epidemiology appointments

Region	Employing body	Base hospital	Appointee
North, Central and East London	Royal Free London	Royal Free	Dr Jennifer Hart
	University College London	Hospital for Tropical Diseases	Dr Laura E B Nabarro
Northern Ireland	Belfast Health and Social Care	Royal	Dr Ciaran O'Gorman
	South Eastern Health and Social Care	Ulster	Dr Hannah M McCormick
North West London	Great Ormond Street	Great Ormond Street	Dr Surjo Kiran De
	PHE National Infection Service	Colindale	Dr Mariyam S Mirfenderesky
South London	King's College	Denmark Hill	Dr Aileen E Boyd
			Dr Caoimhe Nic Fhogartaigh
			Dr Jasmin Islam
West Midlands	Shrewsbury and Telford	Shrewsbury and Telford	Dr Stephen G Jones

Forensic pathology appointments

Region	Employing body	Base hospital	Appointee
North West	Liverpool Clinical Laboratories	Royal Liverpool University	Dr Matthew S Lyall

Consultant clinical scientist appointments – clinical biochemistry

Region	Employing body	Base hospital	Appointee
North West London	Imperial College	Charing Cross	Dr Edmund H Wilkes
Wales	Cwm Taf Morgannwg	Prince Charles	Dr Brian Tennant

Examination results

Successful candidates for the Part 1 Examination

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

Clinical Biochemistry

Wiaam Al-Hasani
Ellen Bealing
Neil Daniel Gilmore
Sava Handjiev
Freya Hassall
Karen Heverin
Erica Jennison
Sally Louise Kerr
Nathan Ricardo Lorde
Tina Mazaheri
Emma Murray
Alexander Read
Carl Talbot
Maisa Orlanda Tenazinha Freire
Alveena Younas

Genetics

Jacqueline Didcock
Jana Jezkova
Charlotte Knowles
Alice Pendlebury-Watt

Haematology

Andy Tang Sing Ong
Enas Abusalim
Osama Abdelwahid Elnour Ali
Faisal Amin
Valarmathi Anandhan
Daniah Anis
Mirza Asif Baig
Seifeldin Abdulbagi Bakhit
Jamila Bashir
Hannah Bielby
Emily Booth
Clare M Brown
Noora Buti
Ahmed Butt
Richard Calvert

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Daniel Castle
Poulami Chatterjee
Lucia Chen
Germaine Rui Qi Chia
Naomi Cornish
Elissa Kaur Dhillon
Rehman Faryal
Kathryn Munro Fleming
Dilupa Nilanthi Gunasekara
Garret Hess
Matthew Holt
Fayyaz Hussain
Taimoor Hussain
Asif Iqbal
Adam Jones
Shenbagaram Kasivisvanathan
Sofia Ali Kazmi
Dipal Mehta
Mohamed Mohamed
Chibuzo Mowete
Omar Mukhlif
Christopher Mullen
Steve Prideaux
Catherine Prodger
Daire Quinn
David Quinn
Pallav Rakesh
Aushna Rasool
Malahat Saeed
Beena Salhan
Georgina Santiapillai
Mansoor Ahmed Shaikh
Suvir Singh
Swathy Srinath
Ka Hei Murphy Sun
Sharadha Sundararaman
Ethan Jack Troy-Barnes
Jennifer Vidler
Ieuan Walker
Ka Wai Wong
Kar Ying Yong

Haematology Clinical Science
Alison Marie Hadfield
Chloe Hayden
Jayne Patricia Parkes
Stephanie Shail
Reginah Visser

Histocompatibility and Immunogenetics
Emma Louise Burrows
Miceal Cole
Clare Collins
Olivera Gjorgjimajkoska
Dawn Louise Howe
Mark Lobb
Mahendra Narain Mishra
Kamla Reddi
Adrienne Seitz
Stephen Douglas Weston

Histopathology
Karen Nalbandyan
Asaduzzaman
Khalid Abdul Mannan
Hayan Abo Samra
Loay Emad Abudalu
Divya Achutha
Anubha Aditya
Nikhil Agarwal
Shruti Agrawal
Sinnathurai Ahilan
Maham Akhlaq
Ruba Al Abweh
Fatma Al Hinai
Alaa Husam Kadhim Al Jadeed
Bushra Al Tarawneh
Nesem Al-Ali
Muntaha Aldeewan
Mohammed H Mohammed Ali
Noora Ali
Renad Alkadi
Omar Almukhtar
Amjad Alshammari
Haifa Al-Shammari
Dalia Alaa Al-Zaynee
Ashima Amin
Anusha Anish
Jhansi Rani Arumugam
Tamana Asghari
Omar Ashokaibi
Khyati Babaria
Betcy Mary Babu
Arsha Balakrishnan Soudamini
Ranjeeta S Banakar
Shehla Basheer
Katie Beauchamp
Reena Bhaisare
Neha Bhardwaj
Debamita Bhattacharjee
Muhd Afif Bin Mohd Yusof
Jack Martin Bradley
Yasemin Çakir
Zaher Chakhachiro
Nayana Lasanthi Chandrasiri
Yann Tyng Chau
Matt Cheaveau
Teresa Fuh Guang Chua
Jose Anselmo Coelho Lima Junior
Diya Das
Oliver Davis
Lakvahandhi D S De Silva
Wadu M A Sudammi De Silva
Mate Deak
Katalin Dekany
Shruthi Deshkulakarani
Yogita Devi
Rakeshkumar Dhadhal
Gaurav Dhamija
Aditi Dixit
Nitin Dumeer
Justin Dupey
Doaa Elkholy
Amira Elwy
Theodore Estrin-Serlui
Sarah Evans
Syeda Khadija Fatima
Zeeshanali Fazalbhoy
Saba Firdos
Nitin Gadgil
Nidha Gaffoor
Maithili Gangurde
Marco Gauci
Marcus Peter Geyer
Shweta Gopaldas Gondha
Neeti Goyal
Vijayalakshmi Gudivada
Ratnaprabha Gunge
Diksha Gupta
Prapti Gupta
Yashita Gupta
Swati Gupta
Katherine Halloran
Hazwa Karathanathodi Hamza
Alexander Haragan
Nabil Hasasna
Eman Hassan Saad Hassan
Grainne Heuston
Pussalamankada M S Hiroshini
Shalinder Kaur Hooda
Saba Humayun
David Ibikunle
Chigbo Ifezulike
Bensy Isaac
Theodora Iten-Scott
Shabina Rahim Jafferani
Fatemeh Jalili
Rabia Javed
Dona Nishani Jayatunge
Meragal Pedi Gedara Nimali
Sanjeewani Jayawardhana
Janemary Jeesemon
Melanie Jensen
Nawaf Jurdi

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Priyanka Kale
Sonu Kalyan
Dharani Kanagarajah
Kopinath Kathirvetpillai
Sarah K I Ahmed Khalid
Kazi Farzana Khanam
Rashmi Khemani
Arpitha Kollabathula
Shravya Kotian
Sruthi M K Thiruvengatam
Anastasiya Kret
Rinku Susan Kurian
Ping Hei Lam
Monika Lamba Saini
Rita Luis
Wafaa Ali M Babh
Swati Mahajan
Ebtehal M M Mahmoud
Amr Maihoub
Jannateen Majid
Sushmitha Malpe Gopal
Jathavani M M Theepan
Ben Marriott
Joely Mead
Sarosh Moeen
Syed A M Ameen
Nasar Mohammed Abdul
Hema Priya Mohanraj
Anil Bansidharrao Munemane
Muthukumar Muthuramalingam
Shilpa N
Divya Nagaram
Aparna Narasimha
Hania Naveed
Zahida Niaz
Niall O'Neill
Suchita Pant
Vivek Parameshwar
Shital Parekh
Leena Patwardhan
Sathiya Devi Periasamy Geetha
Naveen chand Perugu
Cicy Petta Joseph
Ashish C Philip
Sangeetha Ramakrishna Pillai
Adele Pryce Roberts
Najma R A
Aiswarya Radhakrishnan
Sathyanarayanan Rajaganesan
Madhubala Rajendran
Chelvam Rajesvaran
Sharmilla Devi Rajkumar
Vidusha Ranathunga
Tasneem Rangwala
Nidhin Rehman
Aysha Rizwan
Somaia Saad El-Din
Souvik Saha
Priyanka Sajiv
Swati Saxena
Jigar Shah
Firdous Tabassum Shaikh
Pragya Sharma
Indu Sharma
Ankush Sharma
Saumya Sharma
Alex Shavick
Candice Louise Sher-Locketz
Namrata Shetty
Vikram Singh
Rekha Singh
Anika Singhal
Sankha Subhra Sinha
Barathi Sivagnana Selvam
Monica Sivakumar
Zahraa Rafid Smaisim
Aashna Soman
Charlotte Sowerby
Ausra Suchodolskyte
Shubha Sudhakar
Smriti Suresh
Fareeha Naseer Syed
Tabbu Syed Batcha
Arshi Tandon
Wan Jing Tay
Sapna Thakur
Shalu Thomas
Vishakha Tikeykar
Zainab Abdulmajeed Toorani
Muhammad Torkey
Panagiotis Triantafyllakis
Revathy V J
Mimna V M
Archana George Vallonthaiel
Neethu Susan Varghese
Lisa Varma
Vinothika Vigneswaran
Joseph Yates

Immunology

Manisha Ahuja
Georgina Davis
Rebecca Jane Gama Paulo
Francisco Miguel Morales-David
Daniel Mullan
Ashleigh Rainey
Alexander James Walton
Sonali Wijetilleka

Infection

Oyekola Abiri
Hugh Adler
Tristan Banks
Lucy Bell
Gregory Aled Benbow
Malin Bergstrom
Christian Buckingham
Alison Burgess
Shruthi Chandran
Awilly Aden Ibrahim Chofle
Mohammed N M M Elnour
Mark Hackett
Kirsty Harvey
Shadin Hassan
Edwina Hegarty
Charles O C Langoya
Marie Bridgette McNulty
Paul Chiedu Nwajiugo
Lorcan O'Connell
Raissa Rachman
Jenna Schafers
Madeleine Shakeshaft
Matthew Stevens
Nicholas Swetenham

Medical Microbiology & Virology

Amira S M Al Dhabbari
K Malathy Anandan
Shui Kuen Cheng
Meadhbh Collison
Chinagozi Edwin
Angel Galdes
Kenneth Goh
Rajarshi Gupta
Sadiya Noor Hajira
Isra Halim
Wenjie Huang
Susan Lapthorne
Manar Najim Mashhadani
Nada Nasr
Ali Nuh
Philip Olayiwola Oshun
K Kankanamalage Madara
Kumuduransi Premaratne
Maanasa Bhaskar Raj Kumar
Rajakaruna W M L P Rajakaruna
Niamh Reidy
Chinnu Sajeev
Anuradha Sharma
Gagani Ulwishewa
Preethi V
Vishnu Vandana Waddepally
Paul Wilkinson
Arun Wilson
Wing Gi Wu

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Molecular Pathology
Mary Alikian
Elspeth Anne Brzezinska
Rhianedd Ellwood-Thompson
Yiwen Liu
Shrinidhi Nathany

Oral Pathology
Paris Tamiolakis
Hannah Walsh

Reproductive Science
Emma Balsdon
Despoina Besi
Sourima Biswas Shivhare
Sarah Derry
Patricia Fadon
Alejandro José Fernandez Ponce
Christina Michailidou-Ahmed
Susan Moran
Jennifer Nisbett
Christian Ottolini
Elena Palomino Gomez
Catherine Reynolds
Rebecca Swann
Iva Vrabtcheva

Veterinary Pathology
Gitte Jeppesen
Gordon Alexander Davidson

Successful candidates for the Part 2 Examination

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

Clinical Biochemistry
Charlton Agius
Emma Louise Kristina Ashley
Amy Rachel Frank
Louise Elizabeth Hawke
Malcolm Peter McTaggart
Louise Oliver
Hussam Rostom
Edmund Henry Wilkes
Alexandra Yates

Genetics
George Burghel
Georgina Carey
Sophie Laird
Louise McClelland
Julie Michelle Turbitt
Rebecca Lois Whittington

Haematology
Ahmed Abdulgawad
Elvis Aduwa
Matthew John Alley
Daniel Angelov
N Walawwe Vindhya Manori
Neelawathura Bandara
Aisling Barrett
Lorna Cain
Wei Yee Chan
Catherine Cox
Brian Craven
Kiri Dixon
Samantha Duncan
Ayesha Ejaz
Johnathon Elliot
Adetomilola Essem
Isabel Farmer
Elena Ganendra
Amy Gudger
Andrew Hastings
Andrejs Ivanovs
Ioanna Lazana
Oliver Lomas
Katrina Parsons
Victoria Peacock
Malik Shahzad Saeed
Zahbia Saleem
Amjad Sheraz
Wing Yee Chris Sin
Dean Smyth
Nelson Soong
David Sparksman
Kathryn Thornton
Sachini Pamoda Warnakulasuriya
Nadeeka D Y Mudiyanselage
Xiao-Yin Zhang

Haematology Clinical Science
April Sellors

Histocompatibility & Immunogenetics
Jayne Suzi Johnson

Histopathology
Hafza Asma Adnan
Mohamed Ahmed Ahmed
Charlotte Aird
Samah Al Abri
Zainab Al Manji
Safia Al Nabhani
Randa Mahmoud Sobhi Amin
Abdul Aziz Al Balushi
Jocelyn Louise Aldridge
Amey Baitule
Niyatha Balakrishnan
Sujatha Balija
Salwa Bano
Philip Joseph Brown
Sarah Brownlie
Anila Chughtai
Andrew Coates
Guy Alexander Conlon
Almas Dawood
Karim Ibrahim Mahmoud Eldib
Peter De La Harpe Golden
Aya Mohamed Ismail El-Mahs
Huda Fadlelseed
Kathryn Anne Frewer
Sophia Merilyn George
Kanchan Kiran Ghosh
Lucy Grant
Patrice Grech
Jenna Gregory
Kathryn Griffin

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Devika Gupta
Brian Hanley
Rashmi Haria
Sarah Elizabeth Annette Harris
Atif Ali Hashmi
Hannah Hawrot
Suzannah Hazeldine
Heidi Katriina Helin
Nour Hemali
Elizabeth Hepburn
Katherine Humphris
Mina Jafari
Sidra Jahangir
Saba Afaaq Jami
Vani Jayaram
Tanu Jindal
Sreechithra Kartha
Eman Mostafa Salem Keshk
Majd Bassam Khader

Balgis Khalil
Oonagh King
Sai Sindhu Kotla
Caroline Launay
Sin Siuew Lim
Owen Mac Eneaney
Philip Simon Macklin
Purvi Mathur
Gabrielle Matthews
Mai Abdallah El-Bashir
Mohammed El-khair
Syeddah Shafaq Mujtaba
Vanessa Elizabeth Palmer
Samuel Benjamin Pattle
Robert James Pell
Nataliya Piletska
David Pisani
Rani R
Preeti Rai

Deepa Ramakrishnan
Fatima Rooman
Alireza Sadeghi Pour
Huma Saifullah
Uati Selo-Ojeme
Laura Shepherd
Sayali Kamlesh Shinde
Abigail Victoria May Speller
Jin Hong Nicholas Tan
Hina Tariq
Renu Thambi
Yasotha Thevacumar
Onyekwere Louisa Udensi
Albina Venus
Bandara Mudiyanselage Iresha Kumari Vithanage
Ghazi Zafar

Immunology
William Bermingham

Medical Microbiology
Muna M K Al-Mahrouqi
Sokolayam Atanze
Rachel Barry
Milo Cullinan
Anand Sarwottam Deshmukh
Fadwa Elsanousi
Terry John Evans
Eoghan Farmer
Rodric Francis

Puja Gupta
Gwennan Jones
Matthew Kennedy
Mary Lucey
Laura Maynard-Smith
Ruth Payne
Kumarapatti Vidanalage Harsha Kumara Kithsiri Perera
Bhamini Puvaneswaran

Fauzia Rizwan
Benedict Rogers
Una Sutton-Fitzpatrick
Tee Keat Teoh
Jennifer Tomlins
Benjamin Tomlinson
Devan Vaghela
Rachel Wake

Molecular Pathology
Louise Gilroy

Adele Timbs

Oral Pathology
Oluyori Kutulola Adegun

Sarah Waring

Reproductive Science
Charlotte Elizabeth Hall

Veterinary Pathology
Karen Elizabeth Beebe

Sonja Jeckel

Virology
Osama H M Ahmed
Benjamin Canning

Donall Forde
Iain Milligan

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Successful candidates for the Certificate Examinations

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

Daniele Mario Di Capua
Lauren D'Sa
Yinka Tosin Fashedemi
Lucy Jane Green
Atharina Julai
Brian Fergal Pierce
Abigail Sharp
John Alphonse Tadross
Kate Tilley
Zornitsa Ognyanova Tsvetanova
Claire Elizabeth Waites

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

Elizabeth Grace Aliaga
Maria Cristina Cavallo
Aoife Margaret Doyle
Ming Liang Oon
Razaan Yousif

The following candidates have passed the Combined Infection Certificate Examination:

Will Beynon
Alex Keeley
Sarah Lawrence

Successful candidates for the Diploma Examinations

The following candidates have passed the Diploma in Dermatopathology:

Ann Helen Fleming
Eugene Liat Hui Ong

British Division of the International Academy of Pathology

Promoting pathology through education and research

Dates for your diary

7th BDIAP Molecular Pathology Study Day

March 2022

Target audience: Histopathology trainees and consultants

Further information available online

14th BDIAP Seminar for trainees in histopathology

March 2022

Approach to Cut-Up: Macroscopic Examination as the Precursor to Accurate Microscopic Interpretation

Target audience: Histopathology Trainees and Biomedical Scientists

Further information available online

BDIAP Workshops

Coming soon – 2022

Monthly interactive virtual workshop sessions for our membership to cover areas of diagnostic pathology

For more information visit bdiap.org or contact Sam Kiely by email administrator@bdiap.org

All future meetings can be found on the BDIAP events calendar
https://bdiap.org/events

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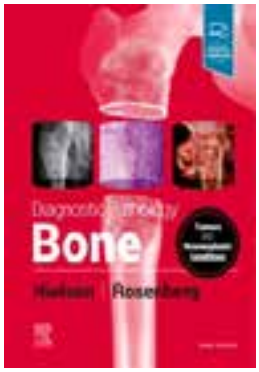

BOOK REVIEW Diagnostic Pathology: Bone (3rd edition)

By G Petur Nielsen and Andrew Rosenberg
Elsevier, 2021
£234.99, 625pp, hardback
ISBN: 978-0323-76533-6

An eye-catching front cover immediately lets you know what to expect from this book, the latest in the Diagnostic Pathology series – bone (and synovial) pathology. How clearly laid out it is! The authors' goal of enhancing diagnostic accuracy and helping to optimise patient treatment has surely been achieved. Expert pathologists, radiologists, oncologists and orthopaedic surgeons over many decades have collated a wealth of information in this updated edition, which serves as a comprehensive 'go to' for medical students, trainees and specialists alike.

The book is neatly divided into sections of neoplastic-related and non-neoplastic-related diseases, for example benign cartilage tumours, giant cell-rich tumours or vascular tumours. Each section is then subdivided into chapters (76 in total) on individual conditions of those diseases, such as enchondroma, brown tumour and epithelioid haemangioma. The haematopoietic, mesenchymal and small round cell tumours of bone divisions are clearer than in more general textbooks.

The two introductory chapters are useful foundations to build knowledge upon. 'Growth and development' explains the basic anatomy and physiology of bone while a 'Radiological approach to bone tumours' gives the reader a better understanding of how radiologists interpret various findings. It was interesting to find out that the effectiveness of therapy can be evidenced by imaging. This chapter provides a very helpful approach to interpreting radiology as a starting point for diagnosis.

Each entity includes a definition, aetiology (genetic, metabolic, traumatic, malformative or inflammatory), epidemiology, clinical features (site, presentation, natural history, treatment and prognosis), as well as radiological, macroscopic and microscopic findings, molecular and genetic features, and immunohistochemical ancillary tests. A differential diagnoses list and diagnostic checklist are included, as are classic and rare variant images, all shown in a clear and well-thought-out format.

The book features bullet-pointed, concise and to-the-point knowledge. It is a very practical guide for day-to-day diagnostic work and report writing. On the frequent, high-resolution images there are helpful arrows pointing to salient features with accompanying descriptions. There are some striking macroscopic images that I am sure to remember, such as those of the ulcerated subungual mass. Seeing these clinical pictures alongside the imaging and histopathology photomicrographs really aids the reader in understanding the important features of each diagnosis.

Although a sizable textbook, the authors have managed to classify bone tumours simply and logically compared with many similar general pathology textbooks. As an easy-to-use, well-illustrated and up-to-date text, I would recommend this book to anyone interested in quick referencing or more in-depth reading on bone pathology.

Dr Alexandra Simonovic
ST5 Histopathology
Royal Surrey County Hospital, Guildford

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BOOK REVIEW Diagnostic Thoracic Pathology

By Annikka Weissferdt
Springer, 2020
£179.99, 1142pp, hardback
ISBN: 978-3030-36437-3

The first edition of Diagnostic Thoracic Pathology offers both breadth and depth in the study of thoracic pathology. It gives an excellent update and introduction to novel and upcoming entities. I started off reading the benign lung neoplasms chapter, since, as a practising pulmonary pathologist, I tend to focus on malignant tumours in everyday practice. These benign entities are a challenge due to their rarity and difficulty, and the fact that they are not always resected. I was astonished at the serendipity of finding the biopsy diagnosis of pulmonary alveolar adenoma rather straightforward when this crossed my microscope a few weeks later. This chapter provides an excellent introduction to new and recently described entities in benign neoplasia. It has given me a good awareness of diagnostic patterns in rarer neoplasms that are not always so well described.

Dr Weissferdt's research interest is in thymic lesions. I found her chapter on benign non-cystic mediastinal disease very helpful. Her description of follicular thymic hyperplasia, centred in the medullary compartment and displacing the cortex, was of great help to me recently in a tricky and subtle repeat surgery for myasthenia gravis. The chapter on non-teratomatous germ cell tumours of the mediastinum is also excellent, demonstrating the variable morphology and detailed immunohistochemistry of these tumours.

The author works at a large cancer referral centre, MD Anderson Cancer Centre in Houston, Texas, USA, which is evident in the excellent morphological descriptions and diagnostic help with tumour pathology – a great strength of this book. However, I also enjoyed the non-tumour aspects such as the chapter on interstitial lung disease, which is more digestible than some more heavily detailed books, especially in an era where the general thoracic pathologist does not see many video-assisted biopsies, especially for the more common entities.

This book complements other pulmonary atlases by providing excellent morphological descriptions, with abundant large colour, high magnification pictures that are very useful in diagnostic cross-reference. Diagnostic Thoracic Pathology would make an excellent diagnostic addition to the departmental or office bookcase of any practising pulmonary pathologist, as a generalist or with more specialised interests.

Declaration of interest: Dr Weissferdt is a former colleague, but I do not have any pecuniary interest in this publication.

Dr Katherine Syred
Consultant Histopathologist
Derriford Hospital, Plymouth

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Legacies

Daniel Ross

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)

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College conferences

Joint Coroner and Medical Examiner Virtual Training - North East and Yorkshire, North West

6 CPD CREDITS COLLEGE CONFERENCE

College online learning programme: Implementation Guidance for Tumours of the Urinary Collecting System

1 CPD CREDIT COLLEGE CONFERENCE WEBINAR

Joint Coroner and Medical Examiner Virtual Training - South West

6 CPD CREDITS COLLEGE CONFERENCE

Joint Coroner and Medical Examiner Virtual Training - Wales

6 CPD CREDITS COLLEGE CONFERENCE

To see all 2021 conferences visit our website.

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2022 CPD-accredited events

6 March 2022
Advanced morphology course
8 CPD CREDITS EXTERNAL EVENT

7 March 2022
BDIAP Molecular Pathology Study Day
5 CPD CREDITS EXTERNAL EVENT

11 March 2022
UK CLL Forum Annual Scientific Day
5 CPD CREDITS EXTERNAL EVENT

16 March 2022
UKMF Spring Day
5 CPD CREDITS EXTERNAL EVENT

21 March 2022
Blood Academy Webinar Series 2022
8 CPD CREDITS EXTERNAL EVENT

23 March 2022
Nottingham Breast Pathology Online Masterclass - Addressing Challenges in Diagnostic Breast Pathology
7 CPD CREDITS EXTERNAL EVENT

24 March 2022
British Association for Ophthalmic Pathology (BAOP) 2022 Annual Meeting
10 CPD CREDITS EXTERNAL EVENT

RCPath CPD-accredited online resources can be found here.

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Pathological Society of Great Britain and Ireland

The Pathological Society of Great Britain and Ireland offers a wide range of grant schemes.

EDUCATION GRANTS/COMPETITION	
Bursaries for undergraduate elective or vacation studies (available to Associate Undergraduate Members of the Society)	27 February & 28 April
Education Grant	1 April & 1 October
Intercalated Degree (available to Associate Undergraduate Members of the Society)	31 March & 1 October
Student Society Bursary Scheme (available to Associate Undergraduate Members of the Society)	Open
Undergraduate Essay Competition (available to Associate Undergraduate Members of the Society)	31 August
Jean Shanks/Pathological Society Summer Studentships	Open
RESEARCH GRANTS	
Best Trainee Research Impact Award	1 October
Best Trainee Research Paper Award	1 October
Consultant's Pump-Priming Small Grants Scheme	1 April & 1 October
CRUK/Pathological Society Predoctoral Research Bursary	25 March & September TBC
Cuthbert Dukes Grant	1 April
Early Career Pathology Research Grant – Hodgkin & Leishmann	1 April & 1 October
Equipment Scheme	1 April & 1 October
International Collaborative Award	1 October
PhD Studentship	1 October
Post-Doctoral Collaborative Small Grant	1 April & 1 October
Trainees Collaborative Small Grant	1 April & 1 October
Trainees-Clinical Scientist Partnership Grant Funding Scheme in Morpho-Molecular Pathology	1 October
Trainees' Small Grants Scheme	1 April & 1 October
Visiting Fellowships	1 April & 1 October
TRAVEL GRANTS	
Pathological Society Meeting Bursaries for undergraduate	31 May & 31 December
Travel & Conference Bursaries	Open
JEAN SHANKS/PATHOLOGICAL SOCIETY (JSPS) RESEARCH GRANTS	
Clinical Academic Research Partnership (CARP)	1 April & 1 October
Clinical Lecturer Grant	1 April & 1 October
Clinical Lecturer Support Grant	1 April & 1 October
Clinical PhD Fellowship	1 April & 1 October
Intermediate Research Fellowship	1 April & 1 October
Pre-Doctoral Research Bursary	1 April & 1 October
OTHER GRANTS	
Open Scheme	1 March, 1 June, 1 September & 1 December
Pathological Society Meetings Bursaries	31 May & 31 December
Public Engagement	1 March, 1 June, 1 September & 1 December

Full details are available on our website: www.pathsoc.org or from:
Julie Johnstone, Deputy Administrator, Pathological Society of Great Britain and Ireland. E: julie@pathsoc.org
4th Joint Winter Meeting of the Pathological Society & The Royal Society of Medicine
25–26 January 2022 – this meeting is now fully virtual

Due to the COVID-19 crisis, grant deadlines may be changed and/or rescheduled. Please refer to our website for updates.

EVENTS @№6

Dedicated to excellence and innovation in hospitality

Events @ No 6 are delighted to offer a range of services to members of the Royal College of Pathologists. We are an integral part of the team at 6 Alie Street, providing a bespoke catering, event management and reception services.

Members and associates of the College are provided with an **exclusive 20% discount** on venue hire bookings. We would be pleased to discuss how we can provide for your personal and professional meetings and events.

The state of the art facilities provide an ideal environment for meetings with room capacity ranging up to 210 for lectures with ample break-out space for larger conferences. The six different function rooms also mean that any style of event can be held at 6 Alie Street to suit your requirements, whether it's an academic webinar, team away day, filming, fine dining, private celebrations or special events.

Visit **www.eventsatno6.com** for more information or to arrange a show round please contact our dedicated events team on **020 7451 6705** or **email sales@eventsatno6.com.**

We look forward to welcoming you to Events @ No 6.