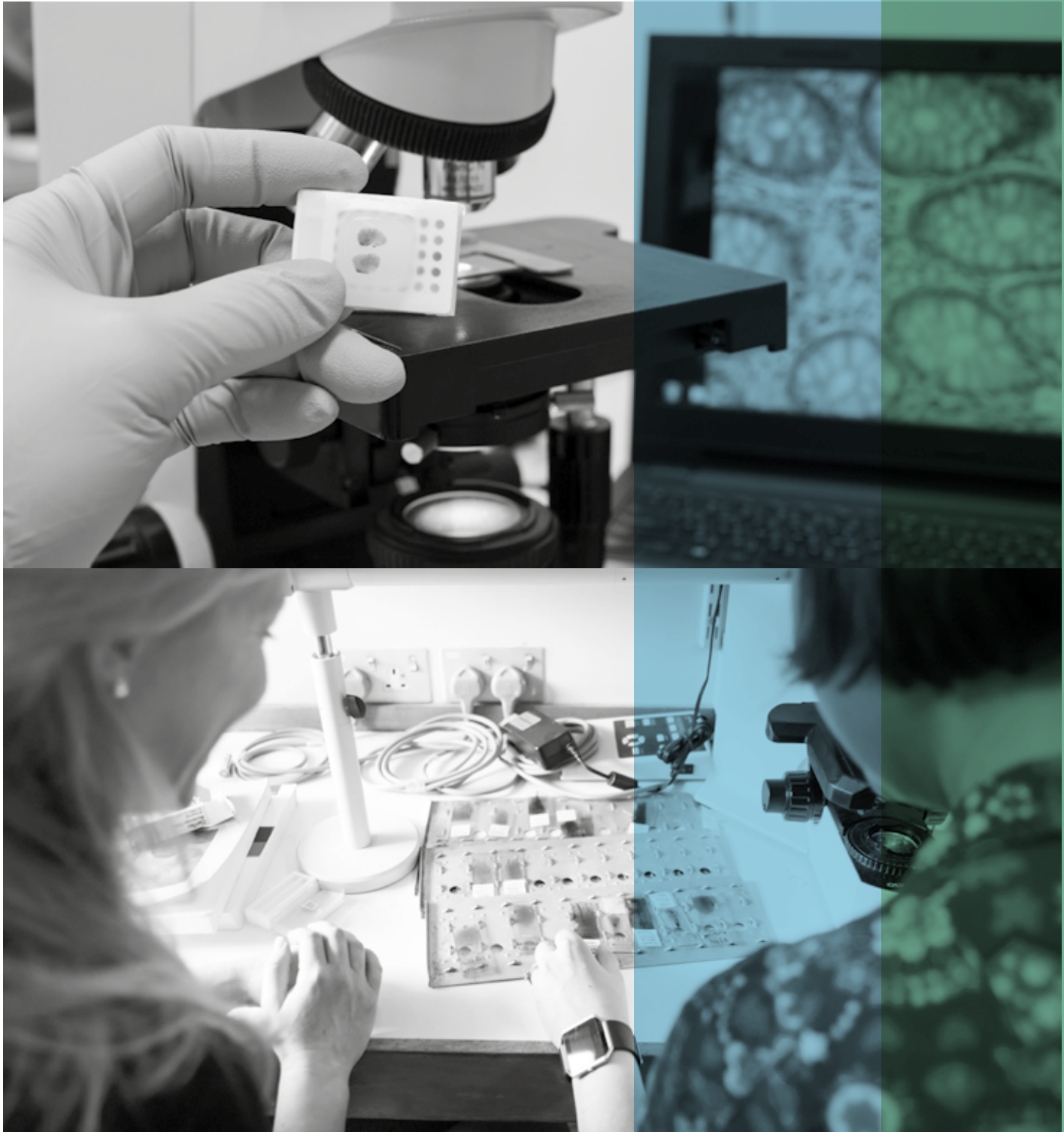




The Royal College of Pathologists

Pathology: the science behind the cure



Annual report

1 July 2019–30 June 2020

# Contents

## **Pathology: the bridge between science and medicine**

Pathology, the study of disease, underpins every aspect of patient care, from the interpretation of routine blood tests to the use of cutting-edge genetic technologies to prevent, diagnose and treat illness.

Pathologists are doctors and scientists who examine samples of tissue and body fluids from patients in order to reach a diagnosis. Many of our members treat serious disease. They also play a critical role in education and research, and devise new treatments to fight infections and diseases like cancer and diabetes.

Our clinical case studies on pages 38 to 52 illustrate the enormous benefits that pathologists provide to patients every day.

## **The role of the College**

The Royal College of Pathologists is a professional membership organisation with more than 12,000 fellows, diplomates and affiliates worldwide. We are committed to setting and maintaining professional standards and promoting excellence in the teaching and practice of pathology, for the benefit of patients.

Our members include medically and veterinary qualified pathologists and clinical scientists in 17 different specialties, including histopathology, haematology, clinical biochemistry, medical microbiology and veterinary pathology.

The College supports pathologists at every stage of their careers. We set curricula, organise training, run exams, publish clinical guidance, and provide opportunities for continuing professional development.

We engage a wide range of stakeholders to improve awareness and understanding of pathology and the vital role it plays in everybody's healthcare. Working with members, we run programmes to inspire the next generation to study science and join the profession.

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01

Introduction



## Message from the Registrar Dr Lance Sandle

While I had hoped to move on from the uncertainty of the previous two years, almost immediately after Brexit the world was engulfed in new uncertainty with a global impact – that of COVID-19 caused by SARS-CoV-2. The first meeting to discuss this report was at Alie St on 11 March. When the honorary officers met the following day, we knew it would be our last physical meeting for some time. Little did we know how long that would be. We knew at that time that temporary closure of our premises would require us to adapt our activities. Thanks to the efforts of many of our fellows – especially those in virology, immunology and related fields – we now know far more about coronavirus than we did at the beginning of the pandemic. We also recognise that what we know now may eventually be eclipsed by what we don't.

The College has, through the expertise of its members as well as its officers, been a source of advice for central government. Expert fellows of all disciplines of pathology have contributed nationally and internationally to the understanding of the disease, and have contributed to a series of 17 webinars held on Wednesday evenings throughout April to July. These free, publicly available webinars attracted a typical attendance in excess of 150 – a tribute to the organisational skills of the learning, conference and communications departments in assembling the programme so rapidly. Subject matter has included not only that which adds to knowledge of the disease, but also how organisational change has been implemented by involvement of expert members in setting up Nightingale Hospitals and associated facilities.

All College business from March onwards has been conducted remotely, by telephone or online by email or videoconferencing. This is now part of everyday life and will be the norm for the duration of the pandemic until the College can resume office-based activities in a 'COVID-safe' way.

This annual report reflects some, but by no means all, of the amazing work that has gone on during the year. It highlights the vast range of achievements and brings you summaries of the areas of activity and some of the COVID-19 related work that has gone on.

Our members and the staff of the College have done such incredible work, and I would like to pay tribute to everyone who has contributed to this.

My thanks on behalf of all of us, especially to all those who give so generously of their time and expertise to support your colleagues through teaching, training, examining, professional support and guidance, response to consultations, publications, communications and public engagement. Our Committee members, College representatives, Council and Trustee Board keep us on track with overview and strategy, and the incredibly valuable time and commitment they put in for the benefit of the profession and the patients we serve is such a key part of our community.

Despite the global situation, and the personal and professional pressures that it has brought, it has been remarkable to see how much has been achieved.

## Welcome from the President Professor Jo Martin

# 02

Our  
achievements

## Developing and maintaining standards

The College is committed to leading the development of standards for pathology education, training and research to improve patient care and safety. We have supported members to excel in the practice of pathology in the face of the significant constraints of SARS-CoV2. We have introduced major changes to support our essential work in relation to examinations, curricula and inspiring the next generation of pathologists.

### Digital Now

Digital Now is a joint College and Health Education England (HEE) project to provide a curriculum-based digital learning platform for pathologists across all specialties. We have worked closely with trainees and trainers to shape the platform. Following a procurement process, we appointed BJSS for the initial scoping and design phase of the project, which was divided into two main phases: Discovery and Alpha. The Discovery phase ran from 5 to 22 May 2020 and consisted of a series of tailored workshops and user research sessions in order to identify the key needs among trainees and trainers, as well as the main areas of functionality to explore in the platform design.

The Alpha phase was completed on 24 July 2020, with the main outputs comprising a list of key functionalities of the platform, design and technical prototypes, and a detailed technical architecture document to define and direct the building of the platform. Procurement for the next phase (beta) to build the platform will be run in collaboration with HEE, with a view for the build of the platform to commence in December 2020. We are currently working with the learning hub team at HEE to compile the procurement specifications to invite tenders from industry partners to build the platform. The estimated build time is between six and nine months with an initial working platform expected in mid-2021. Cellular pathology and haematology resources will be added in the first phase, moving to a much broader range of materials over time.



### A new way of delivering exams

The first exam session of the year – autumn 2019 – ran smoothly, with more than 750 candidates sitting the FRCPPath, Diploma and Certificate examinations. We had a further 1,049 candidates apply for the spring 2020 session; however, the COVID-19 pandemic brought with it new challenges to our exams process the likes of which we've never experienced before.

We took the difficult decision to postpone all exams until the autumn session at the earliest. With uncertainty around the possibility of continued lockdowns, we explored a number of possibilities for delivering examinations in the autumn. We carried out a survey of candidates to assist in the decision-making process, receiving responses from more than 1,200 candidates. Their responses were invaluable in helping guide the decisions we have made and will continue to make.

Next year's autumn exams will now be a very different examination experience for all involved. All written and oral examinations have been moved to delivery via an online platform, with regulatory approval obtained from the General Medical Council (GMC). The new process will see candidates sitting their examinations either at their home or workplace. A small number of examinations will still be delivered in person due to their practical microscopy aspects but will be done so with a comprehensive risk assessment in place at all centres.

This is an exciting new development for the College, presenting us with the opportunity to modernise the way in which we run exams. We are grateful to all trainers and trainees for their patience and support with the changes.

### Development of curricula

Following on from our successful completion of the first stage of the GMC curriculum approval process in 2018–2019, we began work on the second stage process. Submissions to the Curriculum Advisory Group (CAG) began with chemical pathology in October 2019, followed by the four cellular pathology specialties (histopathology, forensic histopathology, diagnostic neuropathology and paediatric and perinatal pathology) in December 2019, and the infection specialties (medical microbiology and medical virology) in February 2020. The latter submission was an endeavour with the Joint Royal Colleges of Physicians Training Board (JRCPTB) alongside its curricula for infectious diseases and tropical medicine.



As of June 2020, the proposed chemical pathology curriculum has been approved by the GMC, subject to a few outstanding conditions. The infection curricula were not approved in the first instance, requiring further work to be done in order to achieve GMC approval. This work was due to be submitted on 30 September. Due to the large amount of work involved in reviewing the cellular pathology curricula, we made a second submission to the GMC in April 2020, thereby completing all requirements. The GMC is in the process of reviewing these submissions and a decision is expected in the coming weeks.

Through collaboration with a number of specialty advisors, we produced an undergraduate curriculum aimed at promoting pathology to medical undergraduates at an early stage in their career. The undergraduate curriculum went out for consultation in July 2019. Following approval from Council, it was launched on 17 September 2019, to coincide with the first World Patient Safety Day.

### Supervised learning events

We introduced supervised learning events (SLEs) in 2019–2020 as part of the assessment programme. We worked with the Curriculum Development Review Groups for Cellular Pathology and Chemical Pathology. The SLEs are strictly designed as formative workplace-based assessments and will replace the current format, which contains both formative and summative aspects. The SLEs will provide meaningful verbal and written feedback to trainees to aid their learning experience and development.

A consultation process took place with fellows and members before the final versions were sent to the GMC. The chemical pathology SLEs were approved by the GMC in May 2020; SLEs for cellular pathology are pending approval.

We also started work in March 2020 to move the Learning Environment for Pathology Trainees (LEPT) system to a new platform, so as to meet the new curricula and assessment requirements for cellular pathology and chemical pathology trainees. This development work is due to be completed by August 2021.

Top: The room set up ready for candidates to sit their autumn examinations.  
Bottom: Students with microscope.

## Promoting excellence and advancing knowledge

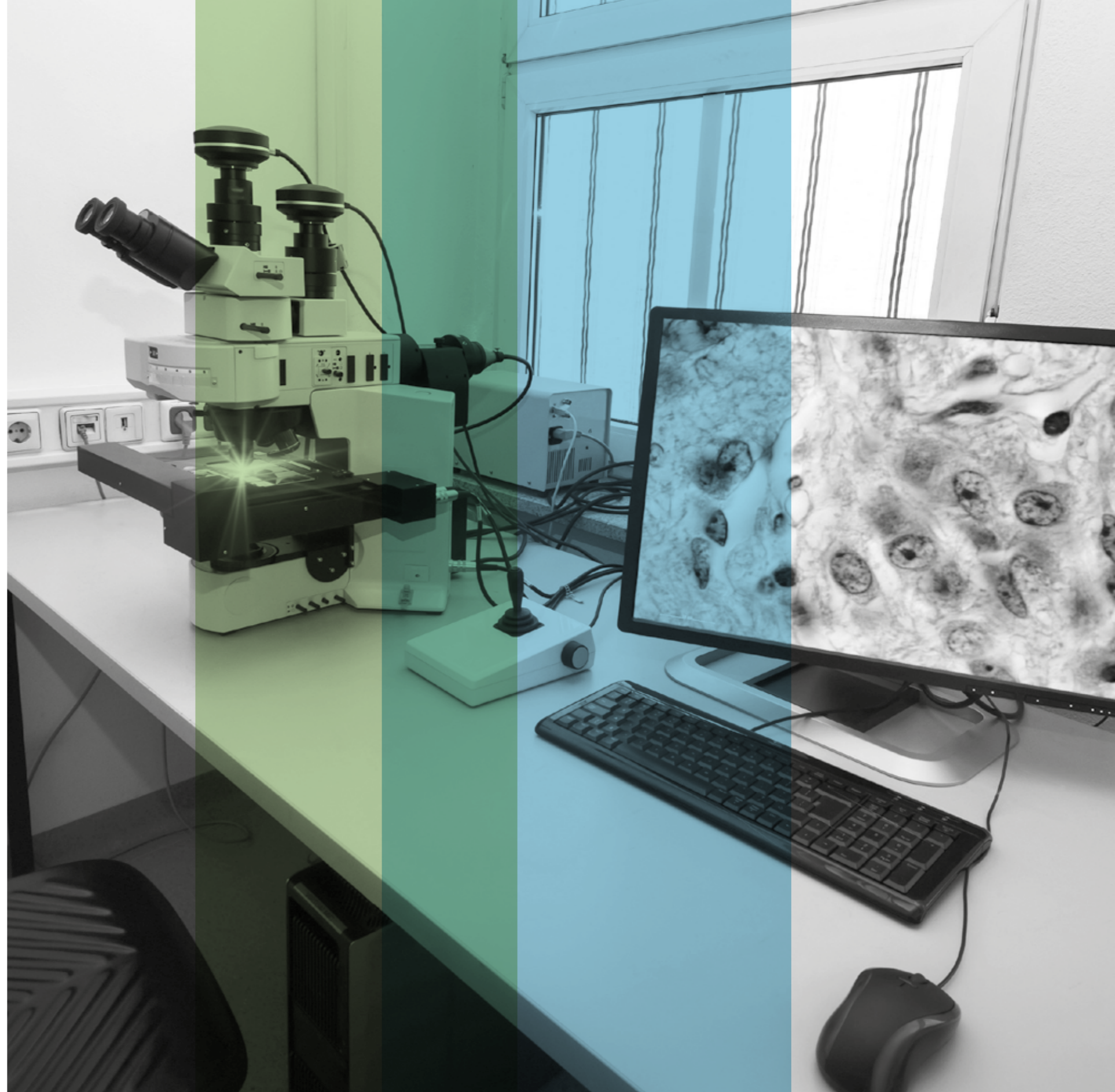
The College has championed new technology and new ways of working, rising to the challenge of maintaining high standards during the pandemic. This includes supporting staff to work remotely together with continued emphasis on the rollout of digital pathology. We have maintained our focus on quality improvement and patient safety with key actions to strengthen the overall framework.

### Supporting digital pathology

After a slow start, digital pathology has rapidly grown to become a hot topic with direct clinical importance. The Digital Pathology Committee provides professional guidance to help with the rollout of this technology while ensuring professional standards and patient safety are maintained. The challenges to the integration of digital pathology are unique to each specialty and it is vital that resources are used where they will be most effective. The Digital Pathology Committee provides advice to other College committees and specialties on where digital pathology would be beneficial. As well as offering advice within the College, the Digital Pathology Committee liaises with healthcare bodies and organisations to provide College input into consultations and documents to shape future decisions around digital pathology.

The ability to remotely report and discuss cases became even more useful – and an urgent priority – for health services during the COVID-19 pandemic. The College rapidly issued guidance on ways to maintain clinical safety while implementing digital pathology under difficult circumstances. We expect to see further interest in using digital pathology in a post-COVID world where remote working becomes much more common.

The integration of digital pathology into College exams will benefit many of our members, but presents numerous challenges. The Digital Pathology Committee set up a task and finish group with the Examinations Committee to look into the possibility of using digital pathology in College examinations, and this complex piece of work is ongoing.







### Improving the governance of EQA

The pathology external quality assurance (EQA) review programme is a collaboration between the College, the Association for Clinical Biochemistry and Laboratory Medicine, Association of Clinical Pathologists, Institute of Biomedical Science, UK Accreditation Service, Medicines and Healthcare products Regulatory Agency and EQA providers to improve the governance and culture of quality assurance. The aim of EQA is to provide assurance that the work of pathologists meets required standards and is consistent across the UK, thus embedding patient safety into pathology practice to deliver safe and high-quality patient care. We form part of the EQA Oversight Board, which provides strategic direction to the programme of work, and an EQA Stakeholders Forum, which ensures the work and priorities take into account the interests and perspectives of users of the EQA scheme.

The delivery plan for the review programme consists of four workstreams that focus on areas of high priority and interest: developing a robust framework, implementing guidance for identifying and responding to poor performance, developing procedures for shared learning and strengthening collaboration with regulatory partners across the UK. It is important that the workstreams are formed of volunteers from both medical and scientific backgrounds across a range of specialties to bring innovative solutions to complex issues.

We have made good progress with this programme of work over the past year. The National Quality Assurance Assessment Panel (NQAAP) on chemical pathology was reinstated, a chair appointed and work undertaken to re-form the group. We also produced a sustainable, open, transparent and fair funding mechanism for financial contributions from the relevant EQA scheme providers. We recruited volunteers and a multi-professional group of 40 volunteers from different pathology specialties will be assigned to the first two workstreams.

### Patient safety

Pathology is continually evolving but there must always be time for reflection to improve the safety of services and care that pathologists and their teams provide. The College is committed to promoting excellence in the practice of pathology and our first Patient Safety Awareness Week was an opportunity for shared learning and to highlight the resources available to support our members in improving safety in the workplace. The week-long programme consisted of podcasts, videos with supporting guidance, an essay competition and a photo pledge. We had good engagement with the podcasts and videos, which highlighted the need for discussion and to take action. Discussions around patient safety should not be restricted to medical professionals – it is important that patients feel part of the conversation and one of the podcasts explored the ways in which pathologists and patients can learn from each other.

Our guidelines, audits and patient safety bulletins promote quality improvement and the set of key assurance indicators for pathology services we published in November 2019 were an opportunity to move focus towards ensuring service quality. We recognise that pathology practice may sometimes fall below expected standards and we promote a positive culture of learning through our patient safety bulletins. We published three patient safety bulletins over the past year and these focused on molecular pathology, reproductive science and genetics, human leukocyte antigen (HLA) typing and specimen tracking. Clinical audits can identify areas for improvement within a workplace, measuring practice against recognised and evidence-based standards and improving patient outcomes. Our audit certification scheme provides assurance that audit reports accepted under the scheme contain the necessary indicators to be of value. Between 1 July 2019 and 30 June 2020, we received 35 audits to our scheme and published several high-quality examples in the Bulletin.



Left: Our members play a vital role in improving patient safety and many of them participated in the photo pledge for Patient Safety Awareness Week.

# Supporting our members during the COVID-19 pandemic

The College is the medical royal college with lead responsibility for the testing of COVID-19. Over the course of the pandemic, our members have played, and will continue to play, a vital role in the understanding and treatment of the disease. They also lead and participate in global research studies to advance our knowledge of this new and deadly virus.

## Professional guidance

Pathologists were faced with diagnosing and guiding the treatment of patients with a new, and deadly, contagious disease. To support our members and their colleagues during this pandemic, we worked with them to produce new clinical guidance on areas from how to manage samples safely to making sure the diagnostic tests being used were robust, and advising on the tests that have a role in the assessment and monitoring of patients with COVID-19 infection.

We pulled together the latest information available on COVID-19 relevant to the practice of pathology into three resources hubs. The main resources hub hosts and links to resources for pathologists and clinical scientists, with the other two providing information for trainees and international medical graduates. In its first three weeks, the hub was visited 20,000 times by 14,100 different users and since launch has been viewed more than 50,000 times by 35,500 different users.

## Webinar series

The need to provide a rapid COVID-19 learning programme was recognised by Professor Peter Johnston, Chair of the Scotland Regional Council. Professor Will Irving, Professor of Virology at the University of Nottingham, Dr Kate Templeton, Consultant Clinical Scientist in Microbiology, Royal Infirmary, Edinburgh, and Professor Shelley Heard, RCPATH Vice President for Learning took the idea and developed a webinar series in a very short timescale. The webinars ran throughout April to July, providing 'bite-sized' expert talks on this emerging disease, its epidemiology, testing and treatments.

## Death investigation of COVID-19

Led by the Chair of the College's Death Investigation Committee, Dr Mike Osborn, the College raised the need for increased post mortems of COVID-19 patients to improve understanding of the disease. By contributing evidence to the Public Administration and Constitutional Affairs Committee and giving interviews to the *Guardian*, *Independent* and *Evening Standard*, we were able to explain how knowledge gained from post mortems would help inform the treatment of patients. We have continued to brief parliamentarians on this issue.

## A post-mortem portal and analysis

We developed a portal for pathologists to submit their post-mortem cases so we could build a database of information to improve the treatment of COVID-19 patients and research about the disease. The initiative has the support of the Coroners' Society of England & Wales and the Chief Coroner. Our team of pathologists review all submissions, extract the salient information and add data to a findings document that is made available on the College website.

## Advocacy

As a trusted voice advising government, stakeholders and the media about the disease, the College made the case that clinical and accredited scientific leadership is an essential component of all diagnostic testing services; that any expansion of diagnostics testing needs to be in partnership with accredited pathology services; and quality standards should apply across all diagnostic services, including stand-alone (Lighthouse) laboratories.

We launched a COVID-19 national testing strategy. Supported by a wide range of stakeholders, the strategy was developed to help build robust process and structures that will work for the future. The President was interviewed by Sky News, the *Financial Times* and the *Health Service Journal*.

The President, and other College members have given evidence to select committees and All-Party Parliamentary Groups, covering topics from building resilience for testing for COVID-19, emergency planning, data and information, and delivering core NHS and social services during the pandemic. We have highlighted our concerns about the backlog of cases, as a result of COVID-19, and the expected surge in demand for pathology services, cancer diagnoses in particular.

## Increase the College's influence

The College champions the expertise available in all pathology specialties across our medical and scientific workforce. Our work has been under even greater scrutiny during the ongoing COVID-19 pandemic. We have been very actively engaging with governments, ministers, parliamentarians and policy-makers to raise awareness of pathology as a vital part of safe, high-quality patient care. We have focused attention particularly on concerns over cancer screening and pathology workforce issues.

### Supporting and advocating for the pathology workforce

We continued to collaborate with Health Education England (HEE) and colleagues of the Pathology Alliance by attending meetings of the Pathology Workforce Working Group. These meetings raise issues and seek solutions relating to any workforce concerns in the pathology specialties. We have joined the associated Haematology Workforce Task and Finish Group to provide College input. This group was convened by HEE to look at how the haematology and transfusion workforce could be transformed to make it more flexible, adaptable, multiprofessional and fit for purpose in the future. The discussions included implementing a similar framework to that being developed in the histopathology workforce.

We also launched a new workforce briefing, *The haematology laboratory workforce: challenges and solutions*, in February 2020, which made the findings of the Laboratory Haematology and Blood Transfusion Departments survey more accessible to government bodies, workforce agencies and individual members of the public. Engaging with the media and key stakeholders – including members of the All-Party Parliamentary Group on Blood Cancer – we highlighted the briefing's central premise that haematologists are finding it increasingly difficult to undertake vital diagnostic work in the laboratory. We have conducted surveys of virology and microbiology departments, the analysis of which will form part of the College's response to the COVID-19 pandemic.

Towards the end of the year we circulated a survey to lead cytologists to gain a better understanding of the use and reporting of all types of diagnostic cytological specimens within the UK. The results of the survey will help facilitate discussions about current and future cytology service provision, as well as help shape cytology training. A report detailing the results will be published in the autumn.

Using our workforce data, we provided information to influence Cancer Research UK's (RAND) report on 'costing the NHS cancer workforce patients need', due to be published in autumn 2020. We highlighted the severe shortage of histopathologists and the need for an increase in consultant numbers. We also provided data to support the Getting It Right First Time (GIRFT) team's *Pathology National Report*, also due to be published in autumn 2020.

In March 2020 we launched a new strategy to support specialty and associate specialist (SAS) and locally employed doctors in pathology. These doctors are a vital and growing part of the pathology workforce in many disciplines. We aim to engage and empower SAS doctors throughout all stages of their careers.



Professor Jo Martin attended the All-Party Parliamentary Group on Blood Cancer where she explained the breadth of expertise behind each diagnosis and highlighted pathology workforce concerns.



# Resourcing the future

We are a responsible, sustainable organisation committed to delivering first-class services to our members. Across 2019–2020, the College made the best use of its fantastic new setting right up until the COVID-19 pandemic hit. We have also worked hard to improve our financial stability to achieve our strategic aims and charitable objectives.

## Improving the way the College runs

The College's committees promote and share knowledge across many aspects of pathology. During the year, the Governance Committee oversaw the implementation of a comprehensive review of the committee structure and all committees' terms of reference. The 2019 review provided clarity on responsibilities and aims for the work of committees, which is a valuable area of work of the College, delivered by many College members on a voluntary basis. Initial focus was given to Specialty Advisory Committees (SACs) and the part they play in the delivery of objectives relating to the overall College strategy. Through the year, other special interest committees were engaged in updating their terms of references and memberships. Lay involvement is important for College business. Our Lay Governance Group began a transition to a more informal group of lay advisors in a Lay Members Network. Lay Advisors would be retained for engagement purposes and to review College documents and resources. The development of this network has commenced under the guidance of Dr Lorna Williamson.

The roles of the Regional Councils for Northern Ireland, Scotland and Wales was clear, with a purpose which clearly demonstrated the need for the function. This was also borne out by comments in the 2018 members' survey. The work of the England Regional Council has been under review as we consider how to focus on improving engagement with members across England.

In total, the Committee Services team, with committee chairs, members and officers, have reviewed 40 committees and five have been disbanded or merged. As of 30 June, revised terms of reference have been approved for 13, 15 are pending approval by Council and the remainder are due for completion by the next AGM in November 2020.



## Our building

In 2019–2020, Events @ No6 firmly established itself as a highly regarded conference and events venue. We've welcomed more than 24,000 guests and hosted a vast array of key clients including the NHS, the Faculty of Clinical Informatics, Cancer Research UK, Association of British Health, BDIAP, Liverpool University, Warwick University, GovNet and many more.

In a highly competitive sector, Events @ No6 has become recognised as a leading conference facility, recognised for high-quality catering and service, as well as promoting sustainability. Industry awards have recognised this in both venue and building categories. The venue received the following awards:

- The New London Awards Education Category – this recognises the very best in architecture, planning and development in the capital.
- Architizer A+ Award for Architecture+ Learning – this celebrates the year's best buildings and spaces from concepts through to completed projects, spanning all sectors.
- Best Newcomer 2019 Hire Space Awards – celebrates the best of the events industry by recognising and rewarding hard-working, innovative and forward-thinking venues and event bookers from across the UK.
- The Brick Awards – celebrates the best examples of clay brick in our built environment.

The College's own academic activities have provided valued continuing professional development events for members. Throughout the pandemic we continued to engage with our members through virtual technologies, hosting conferences and webinars as well as planning future activities through digital and hybrid events. This use of virtual technology is likely to become part of the 'new normal' for events.

## Staff matters – how is the College supporting staff?

We are working within the Investors in People framework to develop the College towards attaining Silver level accreditation. Key areas of focus include:

- a staff survey in December 2019 with resulting action plan
- staff consultations on policies and process changes
- staff-led working groups for values and behaviours, internal communications
- learning and development (an area highly regarded by staff).

## We are regional

The role of the College's Regional Councils is to provide professional leadership in their regions and contribute at a national level to the maintenance and development of pathology services and the quality of care that patients receive. Members create influential links with local stakeholders and build strong relationships with other key decision-makers to ensure that the College has a valued voice. They also filter and amplify relevant information for the College and communicate this information back to the College on a regular basis.

### Wales

During National Pathology Week 2019, the Wales Regional Council brought Dr Suzy Lishman to Cardiff for a living autopsy demonstration. This was well attended, with some 160 tickets snapped up and some great Twitter chatter afterwards. Our trainee members ran multidisciplinary exhibitions and evening meetings for medical students and young doctors.

The Council worked hard to help address pay inequity for histopathology trainees in Wales. Council Chair, Dr Jonathan Kell, wrote to the Welsh Minister for Health and Social Services and met two MPs who shared his concerns that the workforce is struggling to meet demand. This demand is increasing, too, due to the Single Cancer Pathway and reduced age for bowel screening in Wales. The Council recognises these fantastic initiatives for patients and wants to ensure the pathways and workforce are properly aligned.

We have been looking at making Regional Council meetings less Cardiff-centric, by moving the meetings around Wales. With the pandemic and lockdown, recent meetings have been virtual, but we hope to be able to resume in-person meetings across the country, as well as hold a biannual symposium meeting.

In dealing with the pandemic, Wales had two significant advantages over England. First, the country's index cases were defined later than in England. This means that Wales entered lockdown earlier in the course of the pandemic and the spread of infection may have been more contained. Second, testing for healthcare personnel and other key workers began earlier and made a huge difference to the number of people able to make an early return to work. This was good for healthcare planning and provision, as well as for personal wellbeing and confidence.

It is interesting to note that nearly all histopathology departments in Wales reported an 80% drop in activity, while virology and microbiology departments have had to completely rethink how they provide their service, and clinical disciplines have been contributing to covering COVID-19 wards. Wales has made significant contribution to COVID-19 studies and Angharad Davies, Health and Care Research Wales' Specialty Lead for Infection, points to the huge efforts of colleagues across Wales in recruiting to UK national trials. Wales hit the ground running and at the end of March, Welsh Health Boards were the top recruiters in the UK to the RECOVERY trial and have led on the initiation of convalescent plasma studies.



## Scotland

The Scotland Regional Council has considered some key challenges facing pathology in the country over the past year – and into the future – highlighted by a report on the Scottish laboratory workforce (Scotland's Future Laboratory Workforce) commissioned by the Diagnostic Steering Group (DSG). The report showed that in Scotland, across all laboratories, disciplines and professions, there are too few people to deliver the service and too few people in training to fill the places of those who may leave or retire in the next five to ten years. There is no staff group with spare time to take on new and extended roles – such development will only follow investment in education and training with appropriate and timely backfill to maintain throughput. The report also shows inequality of funding implying variation in what is provided in different geographical regions of Scotland.

These challenges, therefore, have been a topic of discussion among the Scotland Regional Council. Services need to be patient centred, locally facing, ensuring the interface between the laboratory and the ward/clinic/practice community is open and relevant. At the same time, staff centredness can facilitate recruitment and retention. Laboratory diagnostics must remain an integral part of local clinical care, not a convenience or commodity, being coordinated across Scotland, mutually supportive, strong, sustainable and resilient to social, demographic and political change.

In Scotland, a clinical governance framework has been developed with SARS-CoV-2 testing as the remit. The testing system in Scotland is based on a distributed service model where local NHS board departments work across a supportive network to share intelligence, expertise and workload. This includes the diversity of scale across Scotland's geography from small boards, like NHS Western Isles, to the largest, NHS Greater Glasgow and Clyde. Looking ahead, capacity building is important as we move from seeking the organism to measuring people's immunological response to it.

Virology departments have overseen a major effort, moving from a position of little resource to one where capacity is ahead of demand. The establishment of management and delivery groups and university collaborations are aligned with the Scottish National Laboratory Programme's tenet – 'right test, right time, right place' – ensuring results are recorded in correct, accessible patient records.

Several lessons have arisen from COVID-19 in Scotland. Clinical leadership is among those: there is value in facilitating 'ground-up' involvement in future-proofing services while reinforcing this within and from senior management. Linking the COVID-19 experience to education is vital. For pathologists, expanding the drive for public engagement should be extended to include non-clinical managers in the NHS and politicians, to share knowledge on the integral nature of laboratories to modern healthcare.

## Northern Ireland

In Northern Ireland, the Regional Council has been focused over the past six months on COVID-19. The response to the pandemic has in some ways been different from the rest of the UK. This is in part due to geography, with reduced travel between Great Britain and the island of Ireland. There was a unified approach to managing the pandemic by the Stormont Assembly, with all sides of the political spectrum appearing to work together while trying to balance the advice and guidance from the UK and Irish governments for the benefit of the Northern Ireland population.

The preparation for the surge was based, similar to the other countries in the UK, around three areas: creating capacity and expanding critical care; supporting staff and increasing availability; and reducing routine work. Interestingly, guidance on these areas, issued by the Department of Health, did not mention the role of pathology in the testing plans or the need for an integrated approach. Increased capacity for testing in Northern Ireland has been mainly through the existing virology laboratories or via the development of a regional facility based at the Agri-Food and Biosciences Institute (AFBI), in partnership with staff and equipment from Queen's University Belfast and Ulster University, with the first test processed in mid-May. This is despite the biotech firm Randox being based in Northern Ireland and supplying tests for the drive-through testing sites in Northern Ireland.

## England

The England Regional Council (ERC) is composed of the Chair, four regionally Elected Council Members and 11 Regional Advisors. Throughout 2019–2020, the Council has been focused on pathology consolidation, alongside other pressing matters. We have been considering the impact of consolidation on our members and how we can support them.

Pathology 'consolidation' is not a new concept though, in its most recent form, it is the amalgamation of laboratories within a region into a hub-and-spoke arrangement. The aim is to achieve economies of scale. We have stayed regularly informed about progress of the project via the Council's Institute of Biomedical Science (IBMS) representative, who is also part of the NHS England Pathology Consolidation group. In order to gain an overview of the extent of knowledge and understanding – as well as communication – about the networks, we carried out a survey of fellows. As a result, the College has identified the need to encourage local leadership to share progress with fellows and promote greater consultation at ground level. The results have also been shared with the Pathology Consolidation team at NHS Improvement who were grateful for the feedback and alerted their network operational teams.

The Council also developed a survey for members about their England Regional Council and local representatives, to help inform work on how best to recruit representatives at local laboratory level while maintaining an even specialty representation. This will take place in early 2020–2021.

## We are international

The 'Pathology is Global' strategy sets out the College's vision for promoting and advancing excellence in pathology internationally. Our activities and achievements, including International Pathology Day, the ARISE project and the Medical Training Initiative, exemplify the commitment of the College to engaging overseas members and sharing knowledge and expertise as widely as possible.

### International Pathology Day

International Pathology Day (IPD) 2019 marked the fifth consecutive year that we've brought together a global audience in celebration of a shared passion for pathology. For the first time, the event was hosted in the College building, in collaboration with The Pathologist, Sonic Healthcare UK and Visiopharm. The focus was advances in rapid and point-of-care diagnostic testing. Point-of-care testing (POCT) allows a clinical care team to carry out tests at the time and place of patient care. Results can be accessed quickly, providing clinicians with real-time data that aids treatment and disease management decisions. It is an important tool in the prevention and diagnosis of disease and for improving patient care.

As well as a new and hugely popular poster competition, we hosted a roundtable discussion that explored the quality of POCT. Since POCT is becoming more accessible and widely used internationally, it is important that guidelines and standards for their quality are implemented. Professor Jo Martin, President, was joined by experts from around the world to discuss gaps in quality control and to explore how the quality of POCT can be regulated like other forms of testing. The roundtable was streamed live to people from 47 different countries who were able to listen in and contribute questions.



### ARISE

During 2019–2020, the College continued its contribution to the ARISE (African Research and Innovative Initiative for Sickle Cell Education) project, which aims to improve sickle cell disease care in sub-Saharan Africa. We achieved a significant milestone in 2019 by coordinating and helping to deliver a three-day Train-the-Trainer workshop in Nigeria alongside the ARISE project team. The workshop was held for a multidisciplinary community of 50 healthcare professionals. It focused on enhancing their knowledge of newborn screening, sickle cell disease, laboratory quality assurance and good laboratory practice, as well as advancing their laboratory skills. Since the workshop, we have also organised laboratory placements at the VIAPATH laboratories in London for two secondees from Nigeria as part of the ARISE staff exchange programme. Secondments have been temporarily suspended due to COVID-19 but e-learning is being developed to support the participants of the project.

### The Medical Training Initiative

The Medical Training Initiative (MTI) and Sponsorship schemes at the College support international medical graduates (IMGs) in gaining registration with the General Medical Council (GMC). We act as a professional sponsor and assist applicants with the required visas. The MTI scheme is mutually beneficial for both IMGs and the NHS. IMGs are able to gain clinical and non-clinical skills, which they can then use to improve patient care in their home countries. For NHS trusts, IMGs take up vacant training posts, ensuring a high-quality workforce while also bringing new and varied skills. The scheme helps to foster international collaboration and the sharing of knowledge. Since 1 July 2019, we have received 31 MTI applications, all of whom have now started their training within the NHS. We also sponsored 19 doctors through the Sponsorship scheme to register with the GMC – ten have now been offered Pending Status sponsorship. If these doctors are able to secure employment, we will continue to sponsor them, enabling them to work and support their colleagues in the NHS while receiving high-quality training and support in return.

International Pathology Day 2019 featured a roundtable discussion on a 'question of quality', which was streamed live, allowing people from all around the world to listen to the discussion and contribute.



## Award winners

The College greatly values excellence in pathology practice, research and education. We have recognised the excellent achievements of our trainees with medals awarded for original research, and our Furness Prize for public engagement. We will be continuing to celebrate the work across all our pathology specialties and the exceptional contribution to patient care through our RCPATH Excellence Awards.

We remember two colleagues through naming our essay prizes in their memory: the Hugh Platt Foundation Essay Prize and the Paola Domizio Undergraduate Essay Prize. Many congratulations to all our winners.

### Trainee Research Medals

The College's research medals are awarded for outstanding research work undertaken by trainees.

#### Gold medal – Dr Sarah Aitken

Dr Sarah Aitken won the trainee research gold medal for her paper on maintaining regulatory homeostasis of cancer pathways, published in *Genome Biology* in 2018.

#### Silver medals

Dr Edward Bevan – Medical Microbiology  
David Church – Chemical Pathology  
Dr Rohit Ghurye – Clinical Immunology  
Dr Harry R Haynes – Histopathology  
Dr John Jones – Haematology



### Hugh Platt Foundation Essay Prize – Keir Edwards

Foundation doctors with an aspiration to specialise in pathology are encouraged to take part in the Hugh Platt Foundation Essay Prize. This competition offers the chance to explore how pathology makes a difference to patients, as well as a unique opportunity to boost your CV ahead of applying for your specialty training.

For the inaugural year of the prize, entrants were asked to write an essay inspired by a patient for whom a result from a pathology department made a big difference. The winner was Keir Edwards, Senior House Officer at Poole NHS Foundation Trust, who explained in his essay how pathologists can use their expertise to empower and educate patients about their diagnosis and treatment.

### Furness Prize for Science Communication – Dr Hamzah Farooq

The Furness Prize for Science Communication is awarded each year to a pathology trainee or medical undergraduate who has shown excellence in their science communication activities.

The winner of the 2019 Furness Prize was Dr Hamzah Farooq, a Specialist Registrar in Medical Virology and Infectious Diseases currently on secondment as a Senior Clinical Fellow in Whole Genome Sequencing of Mycobacteria at the National Mycobacterium Reference Service-South in Colindale. Hamzah has been involved in a wide range of activities throughout the year, in the UK and abroad, and the judges were particularly impressed by his commitment to delivering pathology-related training to undergraduates, postgraduate trainees, healthcare workers and members of the public.

### Paola Domizio Undergraduate Essay Prize – Toal O'Connor

The College's annual essay prize offers undergraduates the chance to take an in-depth look at a particular aspect of pathology through a written piece.

This year's entrants were asked to consider how advances in genomics are impacting on pathology and patient care. The prize was awarded to Toal O'Connor, a third year medical student at Queen's University Belfast, who provided an excellent overview of a very complex topic.

Our winners (clockwise): Dr Sarah Aitken, Keir Edwards, Dr Hamzah Farooq and Toal O'Connor.

# 03

Our specialties and  
clinical case studies

# Our specialties and clinical case studies

We are very proud of the work that our medical and scientific members undertake within each of our 17 specialties, making significant contributions to patient care throughout life. Examples of this essential work range from diagnosing inherited and acquired disease in the foetus and newborn, childhood immunisation, care of pregnant mothers, diagnoses of diabetes, investigation and treatment for various infections and cancers together with screening programmes right through to post-mortem examinations which inform care of the living. The work of many of our specialties has come under particular focus during the pandemic and we have aimed to highlight this with our clinical case studies on the next few pages.

## Chemical pathology

Chemical pathologists and clinical biochemists monitor bodily fluids like blood and urine to detect important changes in the body's chemistry. They play a key role in diagnosing and monitoring patients with a wide variety of illnesses, from high cholesterol to thinning bones.

## Forensic pathology

Forensic pathology is one of the College's smallest specialties. Forensic pathologists provide vital expertise in cases where a person has died in suspicious circumstances.

## Genetics

As advances in technology have allowed us to study DNA in ever greater detail, genetics and genomic medicine have become an important weapon in the fight against disease. Doctors and scientists working in genetics diagnose inherited diseases and advise families on treatment. Genomic testing also contributes to the better understanding of infection, including mapping of the COVID-19 pandemic.

## Haematology

Haematologists are experts in blood cells, including those circulating round the body and in the blood cell factories of the bone marrow. Haematologists diagnose and treat malignancies such as leukaemia and anaemias like sickle cell disease. They also deal with abnormalities of the blood clotting system, such as haemophilia.

## Histocompatibility and immunogenetics

Histocompatibility and immunogenetics is the study of tissue typing, most notably for the matching of organ and stem cell transplants. Scientists working in this specialty make sure that transplanted organs are compatible with the recipient to lessen the chances of rejection.

## Cellular pathology

Cellular pathology includes many subspecialties, including cytopathology and dermatopathology. Cellular pathologists are doctors and scientists who diagnose and study diseases including cancer and inflammatory diseases such as ulcerative colitis in tissues and organs. Cytopathologists diagnose cervical cancers through the screening of cells. Examination by microscope of a small biopsy or tumour can provide the diagnosis but, increasingly, this is supplemented by DNA examination of cancers to tailor treatment.

## Immunology

Immunologists are doctors and scientists who deal with the study, diagnosis and management of patients with disordered immune systems that are a result of acquired and inherited conditions or some blood cancers. They also advise on conditions in which immunological treatment forms an important part of therapy and/or prevention. Some immunologists specialise in treating allergies. This specialty is playing a key role in better understanding the immunological response to SARS-Cov2, including the development of potential therapies and vaccines.

## Microbiology

Medical microbiologists oversee the prevention, diagnosis and treatment of illness caused by microorganisms (bacteria, fungi and parasites). They identify the best treatment for particular infectious diseases and monitor patients' progress. They also advise on the correct use of antibiotics to prevent the development of antimicrobial resistance.

## Molecular pathology

Pathologists working in this specialty examine molecules, particularly DNA, within organs, tissues or bodily fluids to study and diagnose diseases. Molecular tests check for particular changes in genes that can cause disease, such as cancer.

## Neuropathology

Neuropathology covers the study of diseases in the nervous system, i.e. brain, spinal cord and nerves, and also the muscles of the skeleton. Neuropathologists are specialist histopathologists, and spend most of their time making diagnoses of tumours, inflammatory disorders and infections.

## Oral and maxillofacial pathology

This lesser-known branch of dentistry – oral and maxillofacial pathology – is concerned with diagnosing diseases in the head, neck, mouth, jaws and face. Oral and maxillofacial pathologists use soft tissue and bone biopsies alongside information from dental examinations and X-rays to investigate patients' cases.

## Paediatric and perinatal pathology

Paediatric pathologists investigate illnesses affecting children up to 18 years of age. They are experts in diseases of childhood. Perinatal pathology includes the study of disorders of the placenta, problems affecting the development of unborn babies, and causes of miscarriage, stillbirth and newborn death.

## Reproductive science

Using increasingly sophisticated technology, scientists working in reproductive science can give hope to couples who are having trouble conceiving. They are experts in diagnosing infertility, as well as investigating and offering advice and insight on treatment options, such as invitro fertilisation.

## Toxicology

Toxicologists are scientists who work across a broad range of environments in healthcare. In hospitals, they analyse samples from patients who have, for example, taken recreational drugs or overdoses of prescription medicines. They also advise public health bodies and industry on chemical and environmental hazards and on drug safety.

## Transfusion medicine

Transfusion doctors and scientists are haematologists who specialise in transfusion medicine. They make sure that every patient who needs a transfusion is matched with blood from a suitable donor. They oversee the health and wellbeing of donors, the testing of blood for infections, and the management of hospital blood stocks and promoting safe and appropriate clinical use of blood and components. Our fellows have been pivotal in conducting large UK randomised controlled trials of efficacy of COVID-19 convalescent plasma.

## Veterinary pathology

Veterinary pathologists work in animal disease surveillance, prevention, diagnosis and treatment. They play a key role in the development of safe and effective medicines and animal vaccines. They investigate diseases in pets and farm animals, as well as rare and exotic species. They also contribute to animal conservation and protection.

## Virology

Virologists are doctors and scientists who oversee the diagnosis, management and treatment of patients with viral infections, from common viruses like chickenpox to emerging infections like Zika and Ebola. Virologists are also involved in public health – studying and advising on infections spreading globally as a result of travel and climate change. Some virologists specialise in vaccine development. This specialty has been particularly recognised in making an enormous contribution to COVID-19 testing and diagnosis essential to the care of staff and patients throughout the pandemic.

# The Crick Institute and Health Service Laboratories working together

Repurposing the Francis Crick Institute's research lab into a fully operational testing facility in partnership with Health Service Laboratories to support testing of NHS staff for the benefit of patients.

The Francis Crick Institute is a world-renowned biomedical discovery institute researching the biology underlying human health. At the beginning of the COVID-19 outbreak, the government put out a plea for more testing capacity. With what its director, Sir Paul Nurse, described as a 'Dunkirk spirit', the Institute repurposed its laboratory to provide a testing facility that would support the testing of NHS frontline staff.

Health Services Laboratories (HSL) is an independent laboratory network operating in partnership with University College London Hospitals (UCLH) and the Royal Free London NHS Trusts. Being practically neighbours, as well as operating one of the country's largest diagnostic laboratories, HSL was pleased to lend its support to the Crick's rapid transformation.

Dunkirk spirit notwithstanding, and as an example of a successful academic, independent sector and NHS partnership, the teams worked tirelessly to accomplish a remarkable feat – to turn a research laboratory into a diagnostic testing facility able to test at scale.

In a matter of just a few weeks, both teams achieved what would normally take months – developing a sensitive and specific COVID-19 PCR assay, and processing and scaling up the testing operation in line with regional needs.

HSL's extensive experience and expertise was key to setting up the Crick's pre-analytic operation.



The IT team's first challenge was to build an information management system so that the Crick could receive samples and deliver results electronically. As HSL already has a proven system in place for this, it was decided to use and extend HSL's existing systems and facilities. Consequently, HSL's laboratory infrastructure based at Whitfield Street now receives and registers all samples prior to them being sent to the Crick for analysis.

Integrating both organisations' systems was another priority. The team had to build a new interface to link test request data to the Crick analytical processing systems, while ensuring the safety and continuity of samples between sites. The team extended the existing HSL electronic sample tracker system to Crick users, which then supported traceability of samples as they moved across the region from patient to laboratory.

They also worked with the Crick teams to integrate the analytical platforms to allow the Crick's results to be transferred digitally to HSL's systems before being authorised and released swiftly to the treating clinician, patient and Public Health England. All achieved in just a few weeks, the new IT system is now a cornerstone of the Crick's testing operation.

At the same time as working on the required IT configurations, the HSL and Crick molecular scientific teams set about developing an accurate and robust polymerase chain reaction (PCR) pipeline. Using well-characterised case control material, and compared to HSL's established COVID-19 assay, they set up and validated an extraction and PCR workflow, repurposing the research infrastructure and equipment that would normally have been used for discovery science.

The testing method used at the Crick uses open platform technology, enabling flexibility and allowing for controlled variation in sample input where necessary, which helps guard against global shortages of swab types, reagents and equipment.

Ensuring correct governance and oversight was critical. HSL was able to mobilise laboratory team members with both quality and accreditation experience, supported by those with UK Accreditation Service assessment experience, to support the setup of a quality framework. This framework now underpins the Crick's diagnostic testing facility.

The HSL laboratory and quality teams worked in close partnership with Crick research scientists and the HSL virology team, led by Dr Gee Yen Shin, the HSL Consultant Specialty Lead for Virology, to ensure the testing pipeline is both accurate and reliable, and has the correct level of clinical governance and oversight.

Now sitting alongside HSL's own accredited pathology services, the Crick's COVID-19 testing facility continues to support the provision of COVID-19 diagnostics for regional healthcare workers and patients.

Dr Rachael Liebmann, Vice President of Communications at the Royal College of Pathologists and Group Medical Director at HSL, said, 'I'm delighted HSL was able to support the Francis Crick Institute in the repurposing of their laboratory. To produce a fully operational testing facility in a matter of weeks is nothing short of extraordinary. This remarkable achievement is testament to the hard work, dedication and open collaborative approach of all staff involved.'

Dr Sam Barrell, the Crick's Chief Operating Officer, commented, 'We are delighted that we have been able to work so successfully in partnership with HSL to establish our testing facility. From a standing start we are now processing close to 2,000 tests a day, providing critical support to the regional health infrastructure. HSL have been exemplary partners in this endeavour.'

Dr Paul Grant, HSL's Molecular Virology Scientific Lead, said, 'It was an extraordinary challenge, but fantastic to work with the scientists at the Crick in transforming their labs into a bespoke COVID-19 testing facility, and help them to get their assay validated and running in record time.'

As we approach the winter, early signs are that COVID-19 will enter its next phase and cases will increase. Testing remains at the heart of the government's strategy to manage the impact of the virus within the population, and to support the network of NHS hospitals, community and care settings that are so critical to the national health and social care infrastructure.

HSL and the Crick's successful venture is testament to how collaborative working can, and must, be part of the solution and is helping with the staff testing that is essential for supporting seamless patient care.

Dr Paul Grant, Molecular Virology Scientific Lead, who led HSL's Molecular Team's work on the COVID-19 PCR assay.

## Virology: a bridge between the laboratory and patient care

Dr Louise Berry is a consultant in infectious diseases and virology at Nottingham University Hospitals. Here she explains her fascination with virology and the vital role it has in diagnostics.

My fascination with viral infections pre-dated my medical career. During my first degree in Cambridge I studied biological anthropology and I was intrigued with how humans interact with each other and the environment in ways that increase their susceptibility to different diseases. After spending several years in the United Nations and charities working on HIV projects, I was hooked on viruses and wanted to understand more about how to diagnose and treat patients and what was next on the horizon for us as a species. I decided to apply for Graduate Entry Medicine and this was the beginning of a 14-year period of training to become a virologist and infectious disease physician.

As a virologist, it sometimes feels that we are always on the verge of another viral outbreak, be it HIV, Zika, measles or Ebola. The size, density and mobility of human populations have provided favourable conditions for the rapid spread of novel viruses. As a trainee I spent several months in Sierra Leone during the 2014–2015 Ebola outbreak. During this time, I gained experience of the rapid deployment of stringent infection prevention and control measures to contain the outbreak and keep frontline workers safe. This experience has greatly helped me to apply this knowledge to the current COVID-19 outbreak.

For some time, we have expected a global pandemic caused by an unknown 'disease X' — likely a novel influenza or coronavirus. No one knew the specifics of when, where or what until now. To say that 2020 has been a busy year for microbiology diagnostic services is quite the understatement. As we welcomed in 2020, none of us knew the scale of the pandemic to follow.

Being a patient-facing clinician as well as a pathologist gives me the benefit of being able to explain to patients directly the results of their tests. I also have a detailed understanding of how these results have been generated. As a clinician I understand the pressures faced by colleagues trying to decide whether to isolate a patient with possible COVID-19 and the need for rapid results. Working as a virologist within a molecular diagnostic laboratory affords you insider knowledge of the limitations of the molecular tests used to diagnose COVID-19. I am able to explain these to clinical colleagues on the front line. How we act on a result can have huge implications. Over-reliance on a false-negative result when clinical disease is strongly suspected can lead to a lack of appropriate infection control and isolation measures and may lead to onward spread. Conversely, some patients may have persistently positive test results post-infection, which does not represent ongoing infectivity or a need for isolation.

The pandemic has made me even more aware of the role of virologists in bridging the knowledge gap between frontline clinicians and the diagnostic laboratory. To be able to explain both the utility and limitations of individual molecular tests helps colleagues with interpretation of the results generated. In May, I was honoured to be asked to present on the topic of 'COVID-19: clinical presentation and management' for a RCPATH series of webinars on various aspects of the pandemic. Over 22,000 people have logged in to view these so far. During the last six months the volume and speed of scientific publications on this novel virus has been dramatic and, at times, it can feel overwhelming to try to keep up to speed with this new knowledge. My aim was to try to synthesise the most salient learning points and nuggets of knowledge in an accessible way for a wide range of viewers.



During the COVID-19 pandemic, we as a team, have constantly had to deal with rapidly changing guidance and centralisation of resources, such as molecular testing kits. Despite the many challenges we have faced within the laboratory, in the hospital and on a personal level, there have been some positive changes. As a laboratory team we have learnt to change practice at speed and adapt to the difficulties we have faced. An example of this has been the rapid scale-up of diagnostic tests. When faced with precarious supplies of kits, reagents and swabs for COVID-19 testing, we were able to rapidly set up alternative systems for testing.

I have been humbled by, and in huge awe of, the huge efforts of my colleagues to introduce these new tests so quickly. I also feel the virology team have developed closer working collaborations with university research teams and other disciplines within hospital, for instance the infection control teams. An example of this is the shared learning around outbreaks and developing clear action plans to combat hospital transmission of COVID-19. We have learnt to operate outside of our traditional spheres of working and reach out to the broader clinical community who, more than ever, rely on the microbiology team for diagnostic support and advice.



Top: Dr Ahmed and Dr Louise Berry reviewing a chest X-ray.  
Bottom: Dr Louise Berry with Associate Biomedical Practitioner, Matt Bonsall, reviewing PCR results.

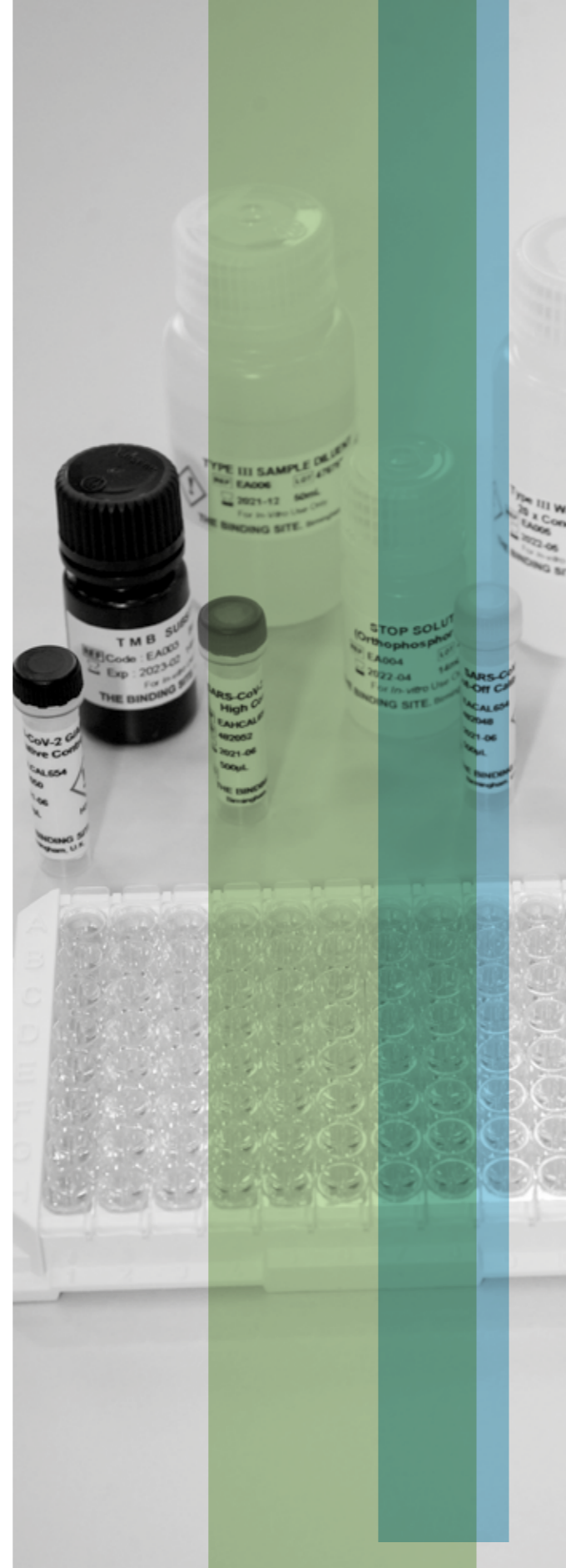
# Innovating to detect infection

Dr Alex Richter, Professor and Consultant in Clinical Immunology, Institute of Immunology and Immunotherapy, led a team from the University of Birmingham to develop a test that could detect COVID-19 in people with mild disease or who didn't show symptoms.

The SARS-CoV-2 pandemic has had an unprecedented effect on all our personal and work lives. Many of us were redeployed, we learnt to manage our patients from afar, our laboratory work patterns and flows were thrown upside down and we have rapidly evaluated and introduced new assays within extraordinarily short timelines. But there has never been a time when pathology specialties were needed more. Conversations around testing, sensitivity and specificity of assays, and false positives and negatives have all become common national parlance.<sup>1</sup>

I direct the Clinical Immunology Service at the University of Birmingham. We are a UKAS accredited NHS-facing immunology and haemato-oncology laboratory that also delivers central trials analysis and has a track record in immunodiagnostic development. Before lockdown we ordered in a number of SARS-CoV-2 antibody assays. Verification of their performance highlighted that they could detect antibodies in patients who have been critically ill in hospital but were woeful at detecting individuals that had suffered milder disease. At the time there was no viral RNA testing for staff or community cases and sick rates were high in our hospitals. There was a real demand for antibody testing among healthcare workers. They needed to know if they had already been exposed and healthcare leaders needed this information for occupational risk analysis.

The team at the University of Birmingham developed a high-sensitivity assay to detect individuals who have been exposed the virus and have had mild or asymptomatic disease.



We repurposed our lab and expanded into the unutilised university teaching laboratories to focus on developing a SARS-CoV-2 ELISA test that was designed to detect individuals with mild disease and even those who didn't show symptoms. Using a systematic academic approach, we evaluated the best test reagents to produce a high sensitivity assay which detects individuals who have been exposed to the virus and have had mild or asymptomatic disease. Having achieved a high sensitivity and specificity we approached a local Birmingham-based diagnostic company, The Binding Site, to partner us to produce this test commercially. Compressing conception to test launch into four months was a steep learning curve and an amazing testament to teamwork and cooperation.<sup>2</sup>

Following a call from the Birmingham Women's and Children's Hospital one Sunday in May, we met to discuss the first suspected cases of paediatric multisystem inflammatory syndrome temporally associated with SARS-CoV-2 (PIMS-TS). We had a cluster of children who had developed a sepsis/Kawasaki-like syndrome but had a negative SARS-CoV-2 swab test. Using our assay, we established that all these children had been infected some time ago. This suggested a delayed immune-modulated condition rather than being a direct result of the virus.<sup>3</sup>

Alongside working on the assay, I also worked with the University Hospitals Birmingham Trust to set up a research study to determine the immune response to SARS-CoV-2 infection in healthcare workers who were recovering from infection. In April, the first arm of this study recruited 554 members of staff in just 20 hours. The demand for testing was humbling. This first study, recently published in *Thorax*,<sup>4</sup> found healthcare workers were at increased risk of prior exposure to the virus than the general public, with nearly a quarter already exposed to the disease by this time.

Cleaners and acute medical specialties had higher rates than workers in the intensive care unit, highlighting the importance of differing infection control procedures. We also found higher seropositivity in black and ethnic minority healthcare workers. The study established the presence of asymptomatic carriage in healthcare workers and showed that individuals can be identified in the pre-symptomatic phase.

We have found that antibody concentrations are highest in patients that have been hospitalised and have been on the intensive care unit. Lower levels have been found in those with milder disease and the lowest levels were seen in those that seroconverted following asymptomatic infection.

In total, we have recruited approximately 4,000 hospital and dental healthcare workers and have ongoing studies to determine how good SARS-CoV-2 antibodies are at protecting against the virus and establishing their longevity. Understanding the antibody response is essential for predicting long-term protective immunity and designing vaccine schedules.

Taking blood for so many staff members has been a challenge, so as part of the study, we evaluated alternative sampling solutions. Our assay, dried blood spot (DBS) testing – which uses a pinprick of blood and is easier to obtain and store – compared well with taking a blood sample from a vein<sup>5</sup> and we have switched to DBS for recent studies to reduce the burden on research teams. Saliva is still under evaluation, but initial analysis has found that you can readily detect antibodies. There may be some instances where the immune system produces antibodies that can be detected only in saliva or by a blood test.<sup>2</sup>

While it is difficult to see light in these difficult times, I do hope to contribute towards a positive legacy from this pandemic. Pathology services have been given a profile and invested in. The quality and clinical utility of testing have been rightly scrutinised, and we have a model for monitoring and tackling other viruses that subject the NHS to yearly winter pressures and large-scale loss of life. Academic and NHS organisations have worked together to rapidly translate basic science, and multidisciplinary teams and organisations have collaborated in ways that have not only been effective, but highly rewarding.

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## Bringing testing to those who are most vulnerable

Care homes were massively affected by the SARS-CoV-2 epidemic in many countries. Testing was not widely available at the start of the epidemic. College President, Professor Jo Martin, describes a clinical trial comparing methods of routine testing with rapid testing in care homes.

During the epidemic, before testing was available to the majority of care homes, we worked with a great team at Queen Mary University of London (QMUL), Barts Health NHS Trust and our local East London Health and Care Partnership to see whether we could rapidly mobilise a team and a clinical trial to compare routine testing via the NHS Roche Cobas system with rapid testing in care homes.

We were given access to Novacyt Primer Design q16 and q32 rapid testing platforms – and when I say ‘platform’ think ‘small gizmo’ not room-sized equipment. You can see from the image just how small these thermocyclers are. They can be ‘daisy-chained’ to increase capacity and we designed a continuous flow system which we are in the process of writing up.

We had a core of experienced scientists and clinical virologists to support the trial, and recruited scientists, graduates and medical students to form teams running the labs and working with the care homes. The consumables and staffing costs were paid for by Novacyt. Parallel samples were run through the NHS labs weekly for comparison.

Full category 3 lab training and risk assessments were completed for the QMUL laboratory. The ‘clinical’ care home swabbing and data collection teams were all trained in the trial protocol, use of PPE, good clinical practice for research, and were all inducted accordingly. All those entering care homes were aware of infection risks and were themselves tested regularly. They were also made aware that they should raise any concerns about the trial and that they had a duty of care to flag up anything of concern observed while in a care home to a senior member of the team.

The trial has proceeded at pace, given rapid approval via the Urgent Public Health priority ethical review system, which was supportive, and the speed and agility of this was much appreciated.

As we start to bring the trial to a close, it is clear that the speed of innovation during the pandemic has required new and flexible responses to get data from research work published and available as fast as possible. Colleagues all over the world have been truly exceptional in expediting high-quality research. Innovation has happened not just in the way we have managed to approve research studies, but also in the way in which we can work together as a system.

Bringing testing to those who are most vulnerable has had an added benefit with great feedback from the medical students who have supported the trial. They are telling us that they not only understand more about the testing itself, but have learnt about clinical research in diagnostics and research in a vulnerable community setting (and yes we did have a care concern raised that was escalated and dealt with). They also valued being able to go into care homes and work with the staff and residents there. Their CVs are enriched with useful and real-world learning and research experience. A spontaneous comment from one of the team around how much their communication skills had improved seemed truly heartfelt.

I learnt with them. Appreciating the wide range of settings that need our input and considering how we can support these care homes has been really valuable learning. Our next challenge is to provide better support, as a health care system, to these key services together with the diagnostics that they need.



## A report from the front line

Dr Kathryn Ryan, Chair of the Clinical Biochemistry Specialty Advisory Committee, and consultant clinical biochemist at Belfast Health and Social Care Trust explains how clinical biochemistry is vital in monitoring patients with COVID-19, and reflects on her time working in critical care during the pandemic.

In March 2020, in a speech referring to the escalating number of cases of COVID-19, the head of the World Health Organization said, 'Our key message is: test, test, test.' And this pandemic has highlighted the indispensable role of healthcare laboratories in identification and management of patients infected with SARS-CoV-2. The focus has justifiably been on our colleagues in virology who rapidly implemented testing for SARS-CoV-2 and then, at pace, expanded the volume of tests available. However, all laboratory disciplines have discovered their specific role in the pandemic. Laboratory tests are performed for four main purposes: diagnosis, screening, monitoring and research. My own specialty is clinical biochemistry. Our laboratories analyse the chemicals present in blood, urine and other body fluids in order to diagnose disease, screen for pre-symptomatic conditions, assess prognosis and monitor treatment. In patients with COVID-19, clinical biochemistry tests are largely performed to assess prognosis and monitor the course of the disease in patients.

In Belfast, patients with COVID-19 who did not require critical care were admitted to the Mater Infirmorum Hospital. Patients who needed intensive support were cared for in Belfast City Hospital, which was repurposed as the Northern Ireland Nightingale Hospital. Biochemistry tests, along with clinical assessment, guided the admission of patients and escalation of their care. We measured blood oxygen and carbon dioxide to provide an initial measure of disease severity.

During hospital admission, we monitored kidney function and electrolytes, such as sodium and potassium, to guide fluid replacement and indicate if haemodialysis, to purify the blood, was required in the most ill patients. However, the key role of biochemistry in COVID-19 was the measurement of inflammatory markers. These measurements assisted in establishing prognosis, stratifying risk and therefore guiding resource allocation. As more evidence is gathered from studies of patients with COVID-19, it may be possible to use a combination of clinical features and biochemical tests to determine more accurately who needs hospital admission, identify deteriorating patients who need intensive support and guide the use of specific therapies. My colleagues and I therefore had a role in advising which biochemistry tests would be useful, how frequently they should be measured and how results are interpreted.

In March, when hospitals in Lombardy, France, and Madrid, Spain, were struggling to manage the number of acute admissions, lead clinicians in our trust developed a strategy to increase acute medical and critical care capacity. This included not only equipment but personnel. There had been a rapid downturn in elective care to reduce footfall in the hospital and potentially reduce transmission of COVID-19. My outpatient clinics in diabetes, lipids and inherited metabolic disease were paused.



With routine work largely on hold, the chemical pathology team in our trust participated in training so that we could be allocated to critical care in the Nightingale Hospital. We were assigned to 'pods', or teams of six doctors, from a variety of specialties and grades. These pods were led by a consultant intensivist. Despite all the potential stress of working outside my specialty, in a new team and in the middle of lockdown, this was an immensely rewarding experience. There was a great sense of camaraderie: we watched the sun rise from our base in level 2 and there were many interesting coffee room conversations.

We were resident for 12-hour shifts, going into the unit in pairs using full personal protective equipment (PPE) for two hours at a time. There was a high level of responsibility to protect colleagues from infection and each person checked that their partner put on and removed PPE correctly. We paired up to maximise our skills and expertise, so an airway specialist would work with a doctor from another specialty. I enjoyed revising and then applying respiratory physiology; training how and when to change settings on a ventilator; learning how to prone (turn a patient onto their stomach); and also using some of my established skills in diabetes care and blood gas interpretation.

I am now appreciating a return to my usual role and reconnecting with my clinic patients and laboratory colleagues. While I could not have anticipated my short sabbatical in critical care medicine, it was a privilege to work with colleagues from many specialties and understand a little more of how the laboratory can support our patients and colleagues in the specific challenges they face.



# Treating people with convalescent plasma for COVID-19

Professor David Roberts, Associate Medical Director, NHS Blood and Transplant, and Dr Lise Estcourt, Director, Clinical Trials Unit, NHS Blood and Transplant, describe the clinical trials to establish whether convalescent plasma is an effective therapy for patients with COVID-19.

The global pandemic of the new coronavirus SARS-CoV-2 has provided an unprecedented challenge in modern times for medical services and scientific endeavour. Many members of the College across many specialties have used their skills and experience to support epidemiology and the prevention, diagnosis and treatment of COVID-19. As well as keeping the vital non-COVID-19 work going.

There have been real advances in a very short time, including better ventilation, dexamethasone and remdesivir. Another promising specific antiviral therapy still under trial is also one of the oldest: patients who have had COVID-19 can donate plasma that can be used as a therapy for new patients at different stages of the disease.

Convalescent plasma has already been used in observational studies of patients with severe COVID-19. A recent report of 30,000 patients treated with convalescent plasma in the USA suggested that convalescent plasma is safe, but there is insufficient evidence to determine whether convalescent plasma is effective in the treatment of COVID-19.

In the UK, NHS Blood and Transplant is leading two large randomised control trials (RCTs) of convalescent plasma, in a new programme of work funded by the Department of Health and Social Care. The strategy is to build up a collection of plasma from convalescent donors to provide enough plasma not only for two large-scale RCTs to assess the efficacy and safety of convalescent plasma, but also to provide enough plasma to treat hospitalised and intensive care patients with COVID-19 if the RCTs show efficacy.

This new programme to collect convalescent plasma has required setting up collection for plasma within 23 fixed donor centres and opening three new centres in London. A further 14 new centres will open before January 2021 to increase collection as infections increase in the autumn and winter of 2020. So far, more than 100,000 donors have been contacted and 30,000 people such as Ian Frayling (read his personal account of COVID-19 on pages 50–51) have attended donation centres, yielding more than 11,000 units of high-titre plasma units and more than 17,000 units of medium-titre plasma. Convalescent plasma for clinical trials will only use plasma that has antibodies in the upper third of the range of anti-spike antibodies.

The first trial, REMAP-CAP, is for treatment of community-acquired pneumonia in intensive care. This international trial is randomising intensive care patients across the UK to convalescent plasma to assess whether this treatment decreases the risk of remaining on a ventilator or dying due to COVID-19. The plan is to randomise up to 2,000 participants to this trial. The trial is currently open at 110 hospitals around the country.

Behind every person who becomes severely ill with COVID-19 lies an intensely personal story. Ahmed Bhayat was one of the first people in the UK to receive a transfusion of convalescent plasma. Opposite, he explains how he became ill and participated in the trial.

## CONVALESCENT PLASMA FOR COVID-19: A PATIENT'S VIEW

Ahmed Bhayat, from Birmingham, who also had a liver transplant in 2016 for primary sclerosing cholangitis, was one of the first people in the UK to receive a transfusion of convalescent plasma. He spent two and a half weeks in the intensive care unit at Birmingham's Queen Elizabeth Hospital and was one of the first plasma patients to speak about their experience.

'He was reluctant to go in, but he became more and more ill and then he was gasping for breath between every word,' said his wife Shannaz.

Ahmed spent two days in hospital on oxygen support, but his condition declined and his family agreed to the painful decision for him to be put into an induced coma. He spent the next 17 days in a coma and 24 days in intensive care in total. The clinicians proposed Ahmed receive plasma and he was one of the first patients to receive it, through the REMAP-CAP trial.

'COVID-19 was the hardest fight of my life,' said Ahmed. 'I didn't know anything about receiving the plasma, but we feel it probably helped save my life. The care all the medical staff on ICU gave was so brilliant and the attention they gave me was wonderful – I can't thank them enough.'

'The words of the chaplain gave me strength and encouragement to pull through this fight, as well as hearing her recite the Qur'an when my family could not be there to do so.'

His condition improved and he was discharged and is now slowly recovering, still with difficulty breathing.

'Personally, I do feel it probably did help him. We are very thankful to whoever donated the plasma,' said Shannaz. 'I would support more people donating after they recover. You have nothing to lose and you could save a life.'

If you test positive, the NHS urgently needs you to donate blood plasma which could save lives. Call 0300 123 23 23 or visit [www.nhsbt.nhs.uk](http://www.nhsbt.nhs.uk)



The second trial is a UK-wide trial of convalescent plasma in all hospitalised patients with COVID-19 and this started in May 2020. Patients in the RECOVERY trial receive the same treatment as in the REMAP-CAP trial: two doses of convalescent plasma. The RECOVERY trial will assess whether convalescent plasma decreases the risk of death or the need for mechanical ventilation for anyone who is hospitalised with COVID-19. The plan is to randomise up to 5,000 participants to this trial and the trial is open at more than 180 hospitals around the UK.

It is inevitable that completing any trials of therapy in a pandemic is a race against time. These trials have proven no exception. The trials of convalescent plasma need a pool of patients who have recovered from acute illness and who have developed antibodies to provide plasma. The trials are likely to report in late 2020 or early 2021. Plasma is being collected to treat patients after the trials have ended and there is likely to be a need for convalescent plasma even after vaccines are available, as uptake and protection are likely to be incomplete. We hope the completion of the trials will define a new, effective therapy for COVID-19.

# COVID-19: a first-hand account

Dr Ian Frayling, who recently retired from his role as a consultant in genetic pathology, describes his experience of COVID-19, and the lasting effects of his illness.

## Evolving symptoms

I initially thought my headache, mild fever and malaise that began on 3 March were due to a knee injury needing stitches and a tetanus boost – a view shared by my wife, Ann Ager, Professor of Cellular Immunology & Immunotherapy at Cardiff University. At that time there were only two cases of COVID-19 in Wales, each one at least 40km away. I did not have a sore throat, but things then started to taste strange with a burning sensation over my back and the onset of coughing at night.

Then on Friday 13 March the storm started, with severe bone-cracking fever and musculoskeletal pain and a cough like no other. I found myself on the floor after passing out with spasms of coughing. My blood pressure plummeted so I stopped taking my ACE inhibitor. My fever worsened while I listened to people on the radio saying, 'don't worry, this is mild'. I also thought 'I can breathe easily, in and out, so I must be OK?' That is until I noticed I had alternating hypo- and hyperventilation. Was this Cheyne-Stokes? Difficult to tell. I was confused, but as a medic it gave me *angor animi*. I'm SCUBA qualified in using enriched air: all I needed, I thought, was a tank of 36% oxygen with no need to bother anyone, but if this worsened I would have to be admitted. I told my wife: 'I'm frightened. If it keeps coming at me, I'm done for.'

My GP phoned me and it was good to talk to a fellow medic. I was her first COVID-19 patient, in fact the first in the Vale of Glamorgan. I had lost 7kg in a week and couldn't stand for more than a minute. My wife remarked that the cytokine profile of COVID-19 is equivalent to having 'flu and malaria simultaneously' and I totally agreed. I then developed gastrointestinal symptoms from top to bottom and put these down to starting to eat again after 10 days, but we now know this can be part of COVID-19. I also had daytime hot flushes and night sweats continuing for a fortnight afterwards, but without fever.

## After the acute infection

After tweeting that I had apparently survived the pandemic, but at some cost, a friend in the business sent me a side-flow antibody test kit on day 21. Despite only one drop of blood extracted with difficulty, the bands appeared, with IgG and IgM confirming that I had been infected with SARS-CoV-2. My wife tested negative and had not had any symptoms. She predicted that some individuals would have pre-existing cell-mediated immunity due to previous infections with other viruses and this has now been shown to be the case.

A local colleague, Dr Esther Youd, showed pictures on Twitter of microthrombi found in kidneys at post-mortem examination in COVID-19 patients. I wondered if the aspirin that I take had helped counter hypercoagulability in me. There are reports about the importance of vitamin D and last winter I took supplements after a friend who is the blood donor care doctor for Denmark noticed levels dropped in her donors each autumn. Maybe that helped too?

Much is spoken about the physical effects of this disease, but there is an enduring mental effect too. Severe COVID-19 is truly frightening, totally unlike flu. I still get very emotional seeing survivors on TV and documentaries and I can relate fully to their experience. Seeing people suffering alone is very hard. More than once I have cried at the misery caused by this disease. As a doctor I want to help.



## Helping others

Fortunately, it turns out there are many ways I can help. Both my GP and sister-in-law, a nursing sister arranging COVID-19 triage, greatly appreciated me relating my first-hand experience of this new disease. My serum helped develop a better assay, since my day-34 serum titrated out to more than 1:5000. My wife also put me in touch with Professors Alan Parker and Paul Morgan, her colleagues in Cardiff University's Systems Immunity Research Institute, and they have welcomed receiving my serum to help with their work on developing vaccines and an ELISA assay for specific neutralising antibodies (anti-RBD).

Through Professor Steven Jolles, Clinical Immunologist at University Hospital of Wales (and my wife's PhD student in the 1990s), my antibody-producing B cells have been sequenced in Oxford in the Regeneron programme to produce therapeutic monoclonal antibodies that might be given, for example, to those who have to shield but cannot be immunised, or are on the clinical frontline. My serum has also enabled three-way comparisons between different antibody assays. My wife and I are already enrolled in UK Biobank and Sir Mark Caulfield acknowledged that we are a special matched-pair in the GenoMICC study given our peculiar circumstances: one affected badly, the other not at all despite exposure.

Hearing that Wales was to start a trial of convalescent plasma I unsuccessfully attempted to contact Public Health Wales and the Welsh Blood Service about donating plasma. I then heard Professor Dave Roberts talking about the trial on the RCPATH COVID-19 webinar series and I contacted him about donating in Bristol. No problem! So, I had a great day out at the donor centre at Southmead, followed later by a letter saying my antibodies were high enough and my 560 mL of plasma could be used.

## 'Long COVID'

I now find I am one of the 10% suffering long-term effects of COVID-19. After initially getting better I went back downhill, with profound shortness of breath on exertion, tachycardia, malaise, weakness, muscle aches, lethargy, nausea, sleep disturbance and a curious slowing of thinking with the 'brain fog'. I have a cyclical relapsing version of chronic fatigue syndrome. I know others continue to have severe COVID-19-like symptoms, relatively unrelated to the severity of their original infection and this affects women more than men. I have been breathless just packing bags at the supermarket and people have generally been very kind. I have found fellow medics also suffering #LongCovid on Twitter and I was honoured to be included in a very positive teleconference with the World Health Organization (WHO) and a letter to the *British Medical Journal*.

It is ironic that I contribute to the WHO Classification of Tumours series. If I had been told last Christmas that all this would happen I wouldn't have believed you. As my wife remarked: 'You couldn't make it up.'

# Learning from death to help the living

Dr Michael Osborn, President Elect and Chair of the Death Investigations Committee, and his colleague Dr Brian Hanley, cellular pathologist at Imperial College Healthcare NHS Trust, explain the value of post mortems. Their work will help inform the treatment of patients with COVID-19, improve understanding of the most severe complications and advance the ways patients are monitored and treated. Longer term, their findings will feed into research about the disease.



The coronavirus disease 2019 (COVID-19) pandemic has presented a challenge for autopsy practice in the UK. There was a large peak in the number of COVID-19-related deaths during March, April and May 2020 in England and it would have been beneficial to have established a national COVID-19 autopsy network. This would have enabled pathologists to assess the pathological features of COVID-19 on a wider scale. Because of existing strains on the autopsy service nationally, a reduction in hospital autopsies in recent decades and the speed with which COVID-19 spread globally, only a handful of centres across the UK were able to perform autopsies on these cases. At our centre (Imperial College Healthcare NHS Trust), we performed ten hospital autopsies on patients who died from COVID-19. Nine of these were standard full autopsies and one was a needle biopsy-based examination. All were conducted according to our College guidelines. Consent was obtained in all cases in line with the Human Tissue Authority 2009 codes of practice and we recognise the generosity of those who gave their consent for our work.

In the cases we reviewed, we found evidence of acute damage to the lungs (consistent with many reports in medical literature). We also found thrombosis (blood clots) in at least one major organ in all cases where we were able to carry out a full post mortem. Thrombosis prevents blood from flowing normally and can lead to strokes and heart attacks among other things. The patients also had evidence of T-lymphocyte depletion in the spleen and lymph nodes. This showed that there had been an alteration in the patients' immune systems and how they respond to infection. Haemophagocytosis (in which infection-fighting cells eat each other) was another consistent finding in this group, showing that there had been an extreme over-reaction by the immune system to infection. One of the ten patients was found to have developed a secondary fungal infection (mucormycosis, an infection that spreads through the bloodstream to affect other parts of the body). This finding was unexpected, and this infection was, ultimately, the direct cause of death in this patient.

Through collaboration with our colleagues in the Department of Virology (Prof Wendy Barclay), we were able to demonstrate the presence of viral RNA in a range of organs using laboratory tests. We discovered the presence of active viral replication outside the respiratory tract. It was also possible using this data to show the persistence of low-level viral replication late in the disease process.

This increased knowledge of the way the virus infects and multiples within the body through the course of the disease is vital to understanding the disease process. It helps determine what treatment is best suited to patients at different times in the course of their disease. By working with our neuropathology colleagues, it has been possible to describe the ways in which severe COVID-19 affects the central nervous system, which goes some way to help explain the central effects of COVID-19 that some patients suffer, such as loss of smell and respiratory depression.

Another extremely worthwhile aspect to these post-mortem examinations was the ability to provide tissue samples for research. We worked closely with Imperial College Healthcare Tissue Bank (ICHTB) from an early stage in this project. They were able to help us create a sub-collection of tissue from our COVID-19 autopsy cases for research purposes. They also provided ethical oversight and helped with the significant governance issues related to the use of this archived tissue. To date, we have worked with and provided tissue to more than 20 research groups, both nationally and internationally. This resource has proved invaluable to the national and international fight against COVID-19 as very little tissue of this nature is available globally.

Only a few centres around the UK were able to conduct consented hospital autopsies on COVID-19 patients in a similar way to us, meaning the entire cohort of such cases in the country is around just 30 cases. In response to the low autopsy rate and following requests from clinical colleagues eager to learn as much as possible about this new disease, the College set up a COVID-19 post-mortem portal. Any autopsy conducted on a known or suspected COVID-19 patient, whether it was a consented hospital post mortem or a post mortem conducted for the coroner, can be submitted through the portal. The information from these reports is then added to the College COVID-19 database and made available to doctors and scientists to support their work. The portal has been widely promoted and a significant number of the COVID-19 autopsies conducted in the country have been submitted. It is a valuable data resource and suitable case studies will be submitted to the World Health Organization to facilitate research and learning. The College, with the help of a £40,000 grant from Pfizer, is working to further analyse the data to provide more information about the disease to help fight the pandemic. We hope our work will lead to better treatments and fewer deaths.

Post mortems will improve our understanding of COVID-19 and help inform the treatment and management of this disease. At their centre, Dr Brian Hanley (left) and Dr Mike Osborn (right) needed to wear personal protective equipment to undertake autopsies safely.

# 04

Our  
governance

# Governance – Council and Trustee Board (as at 30 June 2020)

## Trustee Board

Professor Jo Martin  
President

Professor Shelley Heard  
Vice President for Learning

Dr Rachael Liebmann  
Vice President for Communications

Professor Tim Littlewood  
Vice President for Professionalism

Dr Andrew Boon  
Treasurer

Dr Lance Sandle  
Registrar

Dr Esther Youd  
Assistant Registrar

Professor Peter Johnston  
Chair, Scotland Regional Council

Professor Ken Mills  
Chair, Northern Ireland Regional Council

Dr Jonathan Kell  
Chair, Wales Regional Council

Ms Jill Gauntlett  
Lay Trustee

Mr Robert Smith  
Lay Trustee

Dr Mike Osborn  
President Elect

## Regionally Elected Members

Dr Paul Barrett  
England, North Region

Dr Adrian Bateman  
England, South Region

Professor Sebastian Brandner  
England, London Region

Dr Laszlo Igali  
England, East Midlands Region

## Nationally Elected Members

Dr David Jenkins  
Elected

Dr Mike Osborn  
Elected

Dr Anne Thorpe  
Elected

Dr Darren Treanor  
Elected

## Co-Opted Members

Dr John Snowden  
Chair, Intercollegiate Committee on Haematology

Avril Wayte  
Chair, Clinical Science Committee

## Observers by Invitation

Dr Maadh Aldouri  
Clinical Director of International Activities

Dr Shubha Allard  
Clinical Director of Publishing and Engagement

Dr Paula Bolton-Maggs  
Chair, Transfusion Medicine SAC

Dr Nigel Brown  
Chair, Toxicology SAC

Professor Louise Burke  
Dean, Faculty Of Pathology RCPI

Dr Matthew Clarke  
Chair, Trainees Advisory Committee

Dr Nicki Cohen  
Clinical Director of Training and Assessment

Professor Tim Dawson  
Chair, Neuropathology SAC

Dr Samantha Holden  
Chair, Pre/Perinatal/Paediatric Pathology SAC

Lt Col (Dr) Emma Hutley  
Military Observer

Dr Lynne Jamieson  
Chair, Dermatopathology SAC

Dr Louise Jones  
Chair, Genomics and Reproductive Science SAC

Dr Sacha Kolar  
Chair, Forensic Pathology SAC

Professor Roberto La Ragione  
Chair, Veterinary Pathology SAC

Dr Ann-Margaret Little  
Chair, Histocompatibility and Immunogenetics SAC

Dr Berenice Lopez  
Clinical Director of Safety and Quality

Dr Sanjiv Manek  
Clinical Director of Examinations

Dr Hassan Rizvi  
Clinical Director of Digital Now

Professor David Roberts  
Chair, Research Committee

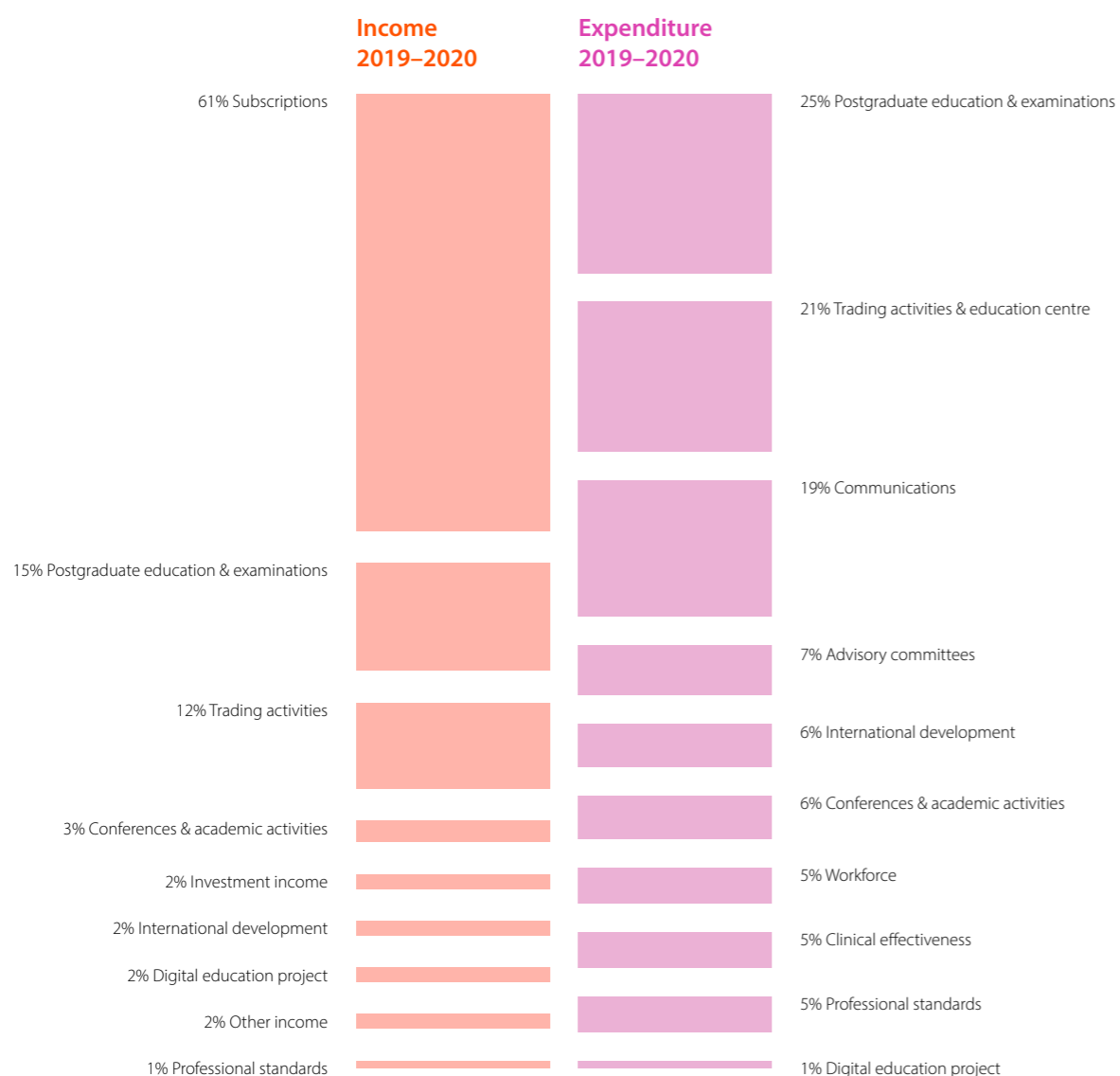
Dr Kathryn Ryan  
Chair, Clinical Biochemistry SAC

Dr Kate Templeton  
Vice Chair, Joint Medical Microbiology and Medical Virology SAC

David Wells  
IBMS Representative

# Financial report

The income of the College amounted to £5.9 million in 2019–2020, with expenditure of £6.6 million, and a resultant deficit of £662k. The Trustee Board had planned for and agreed a deficit budget for the financial year as the College was investing in the establishment of the new commercial conferencing activity for the College. The actual deficit was, however, greater than envisaged.



The principal reason for the 2019–2020 deficit is the impact of COVID-19, which has severely affected the operations of the College. On 24 March the building was closed following general government advice, and all staff have been working remotely since that date. The closure has meant that Events @ No 6 – the arm of the College that manages the letting of rooms and provision of catering to external clients – has been temporarily unable to operate. Twelve staff from both the commercial arm and general College departments have been furloughed under the Coronavirus Job Retention Scheme.

Income from the College’s commercial operations amounted to £852k, including £48k from RCPATH Consulting. The Events @ No 6 conference centre, which opened in January 2019, was having a good year financially up to the point that the centre had to close in March.

Postgraduate education and examinations income amounted to £895k, compared to £1.57 million for the prior year. The College was unable to run the Spring 2020 examinations sitting and has therefore had to defer £900k of examination fees until the autumn. As the spring sitting did not take place, there were no successful candidates in a Part 2 examination that would have otherwise been eligible for membership of the College, with consequential loss in some membership subscriptions income.

The College has been holding virtual committee meetings rather than face-to-face meetings, so there are savings on travel and related costs and the provision of refreshments at meetings. Savings in building-related costs (including cleaning, energy consumption, building maintenance) have been identified as a result of closing the building.

To facilitate the construction of the premises at Alie Street, the College took out a loan of £12 million to fund the project. This development loan migrated into a standard commercial mortgage in March 2020. In order to maintain the best mortgage terms, the College paid off £2.5 million of capital from its reserves, and together with repayments that have taken place during the year this leaves a balance of £9.43 million at 30 June.

No 12-month period combines such disparate backdrops for investments. The second half of 2019 was a positive time for global economies and markets. However, in mid-February 2020, equities and other risk markets fell in a straight line for a month. Sterling investors were somewhat protected as the pound fell quite sharply, but there was no hiding place other than government bonds and gold. At the end of March, the US Federal Reserve not only cut rates to close to 0%, but expanded its balance sheet and the ways to use it beyond anybody’s imagination, causing a strong recovery in risk markets, largely driven by technology and healthcare stocks, amid ultra-low rates and almost-universal economic lockdown.

Against this backdrop, the College’s portfolio saw a good return in the 2019 calendar year of +19.42% and +3.67% in the year to 30 June 2020. Over three and five years, the investments have returned +21.73% and +46.14% respectively.

The accounts published overleaf are not the statutory accounts, but a summary of information relating to both the statement of financial activities and the balance sheet. The full financial statements have been audited and contain an unqualified audit report. They were approved by the Trustee Board on 6 August 2020 and have been submitted to the Charity Commission. Any member may request a copy of the full accounts by writing to the Chief Executive.

**Dr Andy Boon, Treasurer**  
**Mr Daniel Ross, Chief Executive**

## Summary of accounts 2019–2020

### Consolidated Balance Sheet as at 30 June 2020

	30 June 2020 £	30 June 2019 £
<b>Fixed assets:</b>		
Tangible assets	39,036,481	40,596,456
Investments	5,281,517	5,164,735
<b>Total fixed assets</b>	<b>44,317,998</b>	<b>45,761,191</b>
<b>Current assets:</b>		
Stocks	11,231	13,733
Debtors	564,210	684,276
Cash at bank and in hand	5,202,564	6,517,396
<b>Total current assets</b>	<b>5,778,005</b>	<b>7,215,405</b>
<b>Liabilities:</b>		
Creditors: Amounts falling due within one year	(4,332,997)	(4,346,380)
<b>Net current assets</b>	<b>1,445,008</b>	<b>2,869,025</b>
<b>Total assets less current liabilities</b>	<b>45,763,006</b>	<b>48,630,216</b>
Creditors: Amounts falling due after more than one year	(9,110,339)	(11,465,726)
<b>Total net assets</b>	<b>36,652,667</b>	<b>37,164,490</b>
<b>The funds of the College:</b>		
Unrestricted funds – general funds	6,424,037	6,761,512
Unrestricted funds – designated funds	28,864,164	29,303,960
Restricted funds	1,364,466	1,099,018
<b>Total College funds</b>	<b>36,652,667</b>	<b>37,164,490</b>

The financial statements were approved by the Trustee Board on 6 August 2020 and signed on behalf of the Trustee Board by Professor Jo Martin, President and Dr Andy Boon, Treasurer.

#### Independent Auditor's Statement to the Trustees of the Royal College of Pathologists

The full financial statements were audited by Begbies, Chartered Accountants, and approved by the Trustee Board on 6 August 2020 and signed on their behalf by Professor Jo Martin and Dr Andy Boon.

Begbies  
Chartered Accountants and Registered Auditors  
9 Bonhill Street, London EC2A 4DJ  
6 August 2020

### Consolidated Statement of Financial Activities for the year ended 30 June 2020

	Unrestricted General Funds £	Unrestricted Designated Funds £	Restricted Funds £	Total Funds 30 June 2020 £	Total Funds 30 June 2019 £
<b>Income from:</b>					
Donations & legacies	3,892	-	-	3,892	13,905
Charitable activities					
Subscriptions	3,622,145	-	-	3,622,145	3,387,800
Postgraduate education & examinations	831,274	-	63,500	894,774	1,566,741
Digital education project	-	-	100,127	100,127	410,000
International development	50,337	-	58,450	108,787	73,706
Conferences & academic activities	100,112	-	87,838	187,950	178,167
Professional standards	59,788	-	-	59,788	64,054
Communications	-	-	5,000	5,000	4,456
Trading activities	743,280	-	-	743,280	196,411
Investments	139,066	-	8,553	147,619	179,073
Other	79,751	-	-	79,751	16,376
<b>Total income</b>	<b>5,629,645</b>	<b>-</b>	<b>323,468</b>	<b>5,953,113</b>	<b>6,090,689</b>
<b>Expenditure on:</b>					
Raising funds					
Trading activities	1,396,959	11,806	-	1,408,765	508,230
Investment management fees	14,472	-	-	14,472	28,826
Charitable activities					
Postgraduate education & examinations	1,661,517	-	10,986	1,672,503	1,914,853
Digital education project	-	-	26,153	26,153	-
International development	419,748	-	1,079	420,827	461,587
Conferences & academic activities	364,815	-	20,636	385,451	282,860
Research	-	-	3,884	3,884	2,006
Professional standards	330,716	-	1,656	332,372	326,857
Clinical effectiveness	291,658	8,039	-	299,697	309,418
Workforce	337,097	-	-	337,097	334,125
Communications	1,232,585	-	3,331	1,235,916	1,401,175
Advisory committees	478,274	-	-	478,274	720,515
<b>Total expenditure</b>	<b>6,527,841</b>	<b>19,845</b>	<b>67,725</b>	<b>6,615,411</b>	<b>6,290,452</b>
<b>Net income / (expenditure) before net gains on investments</b>	(898,196)	(19,845)	255,743	(662,298)	(199,763)
Net gains on investments	94,274	-	56,201	150,475	337,611
<b>Net income / (expenditure)</b>	(803,922)	(19,845)	311,944	(511,823)	137,848
Transfers between funds	466,447	(419,951)	(46,496)	-	-
<b>Net movement in funds</b>	(337,475)	(439,796)	265,448	(511,823)	137,848
<b>Reconciliation of funds:</b>					
Total funds brought forward	6,761,512	29,303,960	1,099,018	37,164,490	37,026,642
<b>Total funds carried forward</b>	<b>6,424,037</b>	<b>28,864,164</b>	<b>1,364,466</b>	<b>36,652,667</b>	<b>37,164,490</b>

**The Royal College of Pathologists**

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020 7451 6700 | [www.rcpath.org](http://www.rcpath.org)

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