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

Annual report 2018–2019

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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.

The case studies on pages 30 to 40 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 11,000 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.

Message from the Registrar
Dr Lance Sandle

Last year I wrote about the uncertainty as a result of the UK's imminent departure from the EU and its effect on planning. Welcome to 2019 and it's déjà vu all over again. For all we know, Brexit may be even less imminent than the original departure date turned out to be.

Our agenda remains unchanged. We research and educate our new and established professionals, and develop new diagnostics and treatments, right across the breadth of human and animal pathology.

The implementation of medical examiners (MEs) and the RCPathME qualification has seen us welcome a professionally diverse community from a wide range of backgrounds into our College. MEs are part of our particular focus on patient safety, which includes regular safety bulletins that share incidents to try to prevent recurrence.

We have campaigned about the urgent workforce pressures our pathologists are facing and have attracted parliamentary and media interest. We have worked closely with Cancer Research UK, Bowel Cancer UK and an alliance of blood cancer charities in engaging policy makers and are grateful for their support.

NHS Improvement has supported investment in digital pathology and updated laboratory systems, resulting in flexible working and easier linkage and referral. We have had success working with NHS Employers in getting a recruitment premium for histopathology in England. Outreach to encourage trainees to enter histopathology has helped to secure full recruitment to the specialty.

More posts would help fill the 25% workforce gap, and joint working with biomedical and healthcare clinical scientists will ultimately help service delivery across specialities. Our commitment to healthcare scientists as an integral and growing part of our College remains unswerving, and we are pleased that recent discussion with the School of Healthcare Sciences has supported the concept of expanding advanced practice in healthcare scientist training through funded places and a 'schools' model.

Our new Alie Street premises have attracted attention and won a number of awards. The conference staff are successfully marketing the building as a venue, and the new working environment has energised College staff in their work. Our review of our governance structures is streamlining the College and we can look forward to sustained progress on our forward plan once the political climate is not as overcast as it is now.

Welcome from the President
Professor Jo Martin

This annual report, by its very nature, cannot capture all the amazing things that happened in 2018–2019, but it gives a super overview. I would like to pay tribute to all those, all over the world, doing superb work for the College, supporting our profession.

The teaching, training, mentoring, spreading knowledge and supporting excellence in practice through guidelines and standards that goes on is truly awe-inspiring. The research you do makes the future a better place for patients.

I have had the opportunity to see this amazing work first hand, and to meet thousands of you from all our disciplines, through visits to your workplaces and at our events. You are doing fantastically under testing circumstances.

Some of you may never get to meet all the skilled colleagues and staff working for you through the College, but we are there. We work with colleagues from other royal colleges and healthcare organisations, with patients and charities, and we interact with government departments and individuals in a range of public leadership roles. We thank all our partners in these endeavours for their much-valued support.

Our annual report is a fantastic summary of the College's work over the past year, but can never truly capture the enormous scope of passion and enthusiasm we have for pathologists and the future of our profession.

Thank you for everything that you do.

Our achievements

The work of pathologists supports patients throughout their entire life, and we are very proud of this. It also advances diagnosis and treatment through research and innovation to improve patient care. In 2018, we launched a new three-year strategy that sets out our vision for how we will promote and advance the work of pathologists and excellence in pathology. During 2018–2019, we made considerable progress in each of our four strategic objectives. The following pages highlight some of these accomplishments.

1,000
examiners, with 133 new and existing examiners receiving training

347
College assessors attended advisory appointment committees in England, Wales and Northern Ireland

85
Certificates of Completion of Training awarded

4,027
CPD returns processed

158
new fellows welcomed across the College's admission ceremonies

127
new specialty registrars registered with the College

293
events approved for continuing professional development

92
new medical examiners registered

16
Certificates of Eligibility for Specialist Registration awarded

550
trainees used the LEPT system to create annual reviews of competence progression. 7,368 workplace-based assessments were used in those ARCPs

1,595
FRCPath, Diploma, Certificate, Stage A and Biomedical Scientist examination results issued across 54 examinations

24
overseas doctors sponsored to join the General Medical Council register

99,300
people on Twitter and 62,295 on Facebook during National Pathology Week

£4,000
awarded across seven projects by the Public Engagement Innovation Grant Scheme

473
job descriptions reviewed

200
member-led National Pathology Week events engaging public and medical professionals held around the UK

350
volunteers delivered public engagement activities

11
international medical graduates placed into UK training posts under the College's Medical Training Initiative

25
applications approved for Fellowship on the Basis of Published Works

52
international trainees recruited and matched with 47 mentors under the College's International Trainee Support Scheme

Top: The College's first Foundation Taster Day gave foundation doctors an opportunity to find out about the role of pathologists, what the training involves and the variety of career opportunities across the pathology specialties. Bottom: Our first Careers and Ideas event included research-led talks on areas such as genetic sequencing in cancer treatment, short careers talks and Q&A sessions.

Developing and maintaining high standards of education, training and research

The College is committed to leading the development of standards for pathology education, training and research to improve patient care and safety. We aim to support members to demonstrate excellence in the practice of pathology. Our work includes examinations, curricula and inspiring the next generation of pathologists.

Exams and curricula
Across the year, we continued our work to ensure that medical curricula meet the General Medical Council's regulatory requirements. As part of this, we have established Curriculum Working Groups for all specialties. We made excellent progress developing a new chemical pathology curriculum, alongside a transitional one that will be in place in the meantime. Following work this year, we also expect to submit the latest updates to the cellular pathology curriculum (covering histopathology, diagnostic neuropathology, forensic histopathology, and paediatric and perinatal pathology) to the Curriculum Advisory Group by the end of 2019.

In conjunction with the Joint Royal Colleges of Physicians Training Board, the curriculum working groups began writing the combined infection training curriculum, alongside the medical microbiology and medical virology curricula, which will be submitted in early 2020.

Over the course of the year, we successfully ran examinations for the full range of 17 specialties. To ensure our exams run as smoothly as possible, we introduced a new e-management system during the autumn 2018 season. We greatly appreciate the efforts of all our colleagues who help with this vital work.

Encouraging the next generation of pathologists
Our fourth undergraduate Pathology Summer School was run with the support of the Pathological Society of Great Britain and Ireland, Association of Clinical Pathologists, British Division of the International Academy of Pathology, British Society for Haematology, British Infection Association, the British Neuropathological Society and Clinical Aspects of Protein Assays (CAPA). More than 70 UK and international students joined us to explore the specialties and talk to professionals about the work they love to do. One of the highlights was the 'pots' sessions, providing the students a chance to examine interesting specimens and hear the story behind each one.

Another event aimed at undergraduates was our successful Careers and Ideas, which focused on integrating medicine and scientific research. Held in Nottingham, it recognised both scientific and medical routes into pathology, and the necessity for them to work together.

To celebrate the NHS's 70th birthday, we launched a raft of new careers materials at an event with the Institute of Biomedical Science (IBMS) at Langdon Park School in our local borough of Tower Hamlets.

Our New Trainee Welcome Day in August welcomed 80 trainees to the College. We encouraged engagement throughout the day with talks, discussions and a session on the College's LEPT system, which is used to monitor and report trainee progress.

Promoting excellence and advancing knowledge

The practice of pathology has never stood still, with progress sometimes coming through new technology, and sometimes through completely new ways of working. The College is leading on the implementation of the new medical examiner system for England and Wales and in the rollout of digital pathology. Both of these have the potential to transform care for patients. Equally important are our initiatives to improve our daily work through a focus on continuous quality improvement and patient safety.

Medical examiners – taking the lead

Long campaigned for by the College, the roll out of the national system of medical examiners (MEs) from April 2019 in England and Wales was a vital step in the drive to improve patient safety in the NHS, the benefits of which were recognised in the NHS Patient Strategy. MEs will provide robust and independent scrutiny of every death not reported to a coroner. This will mean that issues with patient care can be identified quickly to improve services for others. MEs will also contact the next of kin to answer any questions they may have about the about the cause of death and to provide them with a chance to raise any concerns they might have.

As the lead medical royal college for medical examiners, and working closely with the National Medical Examiner, we have developed resources related to ME services and provided information about the qualifications and experience required to become an ME. We have brought together MEs, coroners, faith leaders and patient groups to make sure there is shared learning from the pilot schemes. This has covered staffing, service provision and setting up and organising an ME service. With e-learning, face-to-face training sessions, video guides and a series of conferences, the College has worked to ensure the success of this much needed change.

Digital pathology

Digital pathology – the collection, management, sharing and interpretation of pathology information in a digital environment – will bring faster and easier access to expert opinion and advice, with the rapid referral of cases between pathology networks or between organisations. It has the potential to support the pathology workforce, which is coping with significant staff shortages, through improved laboratory workflow and the chance to work more flexibly.

On a practical level, the College has developed best practice recommendations with advice on the technical and practical aspects of implementing digital pathology. Following the launch of our digital strategy, we made the case for significant investment to develop digital pathology networks, support IT infrastructure and ensure sufficient staff with the right training.

The announcement by the Department for Business, Energy and Industrial Strategy of a further £50m for NHS diagnostic services and to support the work of existing Centres of Excellence in digital pathology was a welcome investment in faster, more accurate diagnostics.

Top: Glass slides are scanned to create a digital image of the tissue on the slide. This can be examined on screen and easily shared with other experts.
Bottom: Dr Darren Treanor and Dr Bethany Williams discuss the use of digital pathology in cancer screening specimen diagnosis at the national cancer screening review workshop.

Professional development

The College's best practice recommendations and NICE-accredited clinical guidelines help to deliver high standards, audit and quality assurance practices across pathology. In 2018–2019, we issued more than 80 new documents, including new cancer datasets and tissue pathways, best practice recommendations on remote reporting and autopsy guidelines for a range of scenarios.

The College continues to support members with their continuing professional development (CPD) through a range of services including our eCPD portfolio. We also developed a blog series that offers tips and advice to colleagues on how to enhance their professional practice through topics from training and supervision to managing stress.

The College held 17 CPD-accredited conferences during 2018–2019, welcoming almost 2,000 people over the course of 23 days of events. Conference topics included: digital pathology and its validation for primary diagnosis; disruptive technology in pathology; analytical and clinical issues affecting clinical biochemistry laboratories; and practical diagnostic approaches to reporting liver biopsies.

CQI awareness month

The first of its kind in the UK, the College's CQI awareness month in May brought together a range of activities: webinars, podcasts, a competition, published articles on continuous quality improvement (CQI) and a social media challenge.

We developed the programme following a membership-wide survey in 2016. The results indicated that there was very low awareness of CQI concepts and methods among our members. In 2017, the General Medical Council published its new framework for doctors in training. These doctors are now expected to demonstrate that they 'can participate in and promote activity to improve the quality and safety of patient care and clinical outcomes.'

These two factors inspired us to develop our CQI awareness programme to share knowledge and ideas about CQI in pathology. The focus of the month was to support our members with CQI activities and help them understand the value of CQI by providing opportunities for learning and interacting with quality improvement experts. It was also intended to support trainees to develop the necessary capabilities to be able to design and implement quality improvement (QI) projects or interventions that improve clinical effectiveness, patient safety and patient experience.

As well as encouraging members and trainees to undertake CQI activities, the month offered an excellent opportunity to demonstrate how the College supports our members in the workplace, in part through our collection of programmes and resources. These include our CQI mentoring scheme, audit certification scheme, and QI and audit guidance.

We will continue to build and increase our CQI support to members in 2019–2020 by creating better communication channels to identify ways to engage and empower them. We will continue to foster strong working relationships and collaborate with our specialty advisory committees (SACs) around QI and patient safety, so we can identify the needs of each specialty, learn from their expertise and share and spread CQI knowledge and skills.

Collaboration is a key part of the work of pathologists and scientists – it is essential to shared learning, development and improvement.

Increasing the College's influence

The College champions the expertise available in all pathology specialties across our medical and scientific workforce. We engage with and make our case to governments, ministers, parliamentarians and policy makers to raise awareness of pathology as a vital part of safe, high-quality patient care. We also work with the media, which enables us to engage directly with the public across a range of issues – from concerns over cancer screening programmes to pathology workforce issues.

Influencing for patient safety

Our advocacy for a rethink of cancer screening services has been heeded. In November, NHS England announced that Professor Sir Mike Richards would lead a major overhaul of national breast, bowel and cervical cancer screening programmes. The review was given urgency following serious incidents in the breast and cervical screening programmes and the lowest proportion of women participating in cervical screening for a decade. In February, the College hosted a working conference to contribute to the review. Bringing together doctors, nurses, policy experts, representatives from public health, the charity sector and patient groups, the conference focused on opportunities for improvement in public understanding and engagement with the programmes, quality standards, workforce and training, IT and data, and how the programmes are commissioned and governed.

Sir Mike's interim report, published in May, recognised College concerns and feedback from participants: the problems caused by the age and complexity of IT systems in use; a highly committed workforce faced with increasing demand and a lack of robust workforce planning; the need to make screening more convenient and acceptable to those being screened; and the complex and multi-layered arrangements for accountability and governance, which can mean that when incidents do occur, it is not always obvious which organisation should take the lead on investigating.

Changes to the UK's cervical screening programme so that samples are first tested for the presence of human papillomavirus (HPV), which causes most cases of cervical cancer, could lead to 600 fewer cancers a year. This programme has been implemented in Wales and will be rolled out in England and Scotland in 2019 and 2020, respectively.

Historically, the cancer screening programme relied on the examination of cells under a microscope. If abnormalities were found, a second test for HPV would be carried out. The new, automated system analyses DNA samples for the virus infection first, with cells only then microscopically examined if the test for HPV is positive. If abnormal cells are found, women are immediately referred for further testing.

This new system has meant a major restructuring of services and a significant reduction in the number of laboratories. Once the new centres are established, there will be greater stability for staff but the intervening period is one of great uncertainty.

The College, with the British Association of Cytopathology and Institute of Biomedical Science, worked with NHS England, NHS Improvement and Public Health England to suggest ways to mitigate potential risks to services. We pressed for improvements in commissioning, workforce planning and IT to support our cytopathology colleagues. Lessons learned were fed into the review of national cancer screening programmes.

Making the transition safe and ensuring that future staffing is secure is paramount. Cervical screening is a key service for cancer prevention, and we will work to ensure that the programme works well for women.

Engaging the public

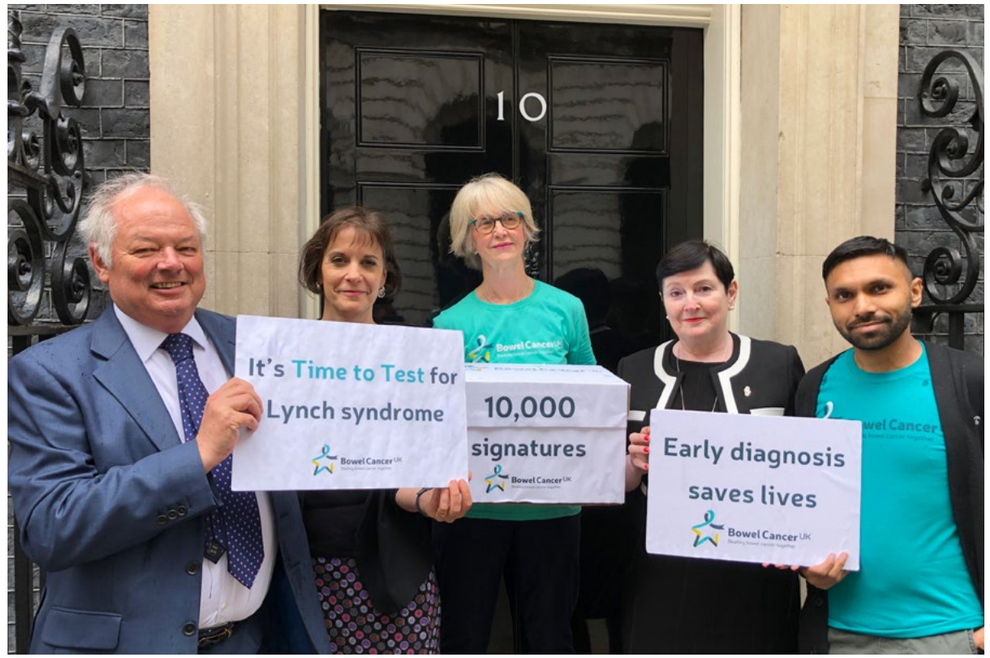
We supported Bowel Cancer Awareness Month throughout April. This included contributing to blogs on Bowel Cancer UK's website, social media activity and the launch and delivery of public engagement activities, working with members to highlight the crucial role pathologists play in the diagnosis and management of bowel cancer. We continued this theme at the annual School Science Conference, delivering 'What does your poo say about you?' as a workshop for more than 350 students.

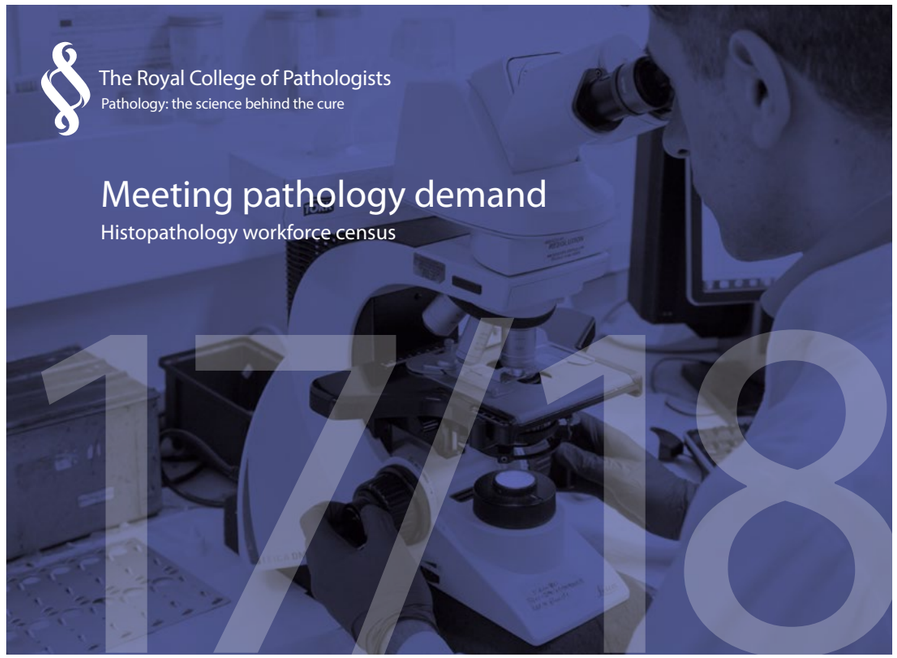
Our biggest ever National Pathology Week ran in November, with a strong focus on pathology careers. The week featured more than 200 member-led events, including a Facebook Live Careers Talk at Kensington Aldridge Academy, a 'Hidden Enemies' public lecture about the 1918 flu pandemic at the Centre of the Cell, and online engagement including a #SecretsOfTheLab competition aimed at members, the launch of careers interview videos and our *What is a pathologist?* animation.

Events funded by our grant scheme included open days for school groups at pathology labs in Wales and Scotland, a pathology-themed theatre production at Great Ormond Street Hospital, London, and a week of events for medical students, schools and the public in Exeter.

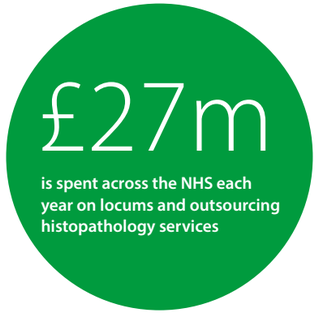
Our 'Blood and Bugs' activities were delivered at a special World War 1 centenary event, 'Heroes at Highclere', in September, supported by around 20 Fellows. More than 3,500 members of the public attended the event each day.

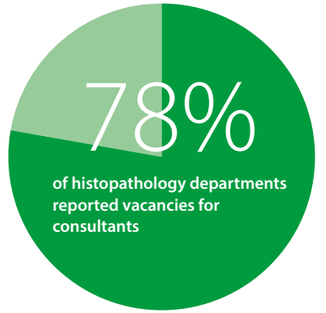
Top: Secondary school students from Aberdeenshire take part in 'Science Secrets of the Hospital Lab' during National Pathology Week.
Bottom: Our 'Blood and Bugs' activities took participants on an interactive journey through medical developments from 1914 to 2014 and highlighted the contribution pathology has made in healthcare as a result of discoveries and innovations during World War 1.





Top: President Professor Jo Martin outside 10 Downing Street with patients and Bowel Cancer UK colleagues, where they presented a petition calling for all bowel cancer patients to be tested for Lynch Syndrome at the point of diagnosis.





Influencing policy:
our histopathology workforce census

Safe and effective high-quality patient care depends on having the right number of staff, with the right expertise, in the right places. Our census of the histopathology workforce, *Meeting pathology demand*, showed that only 3% of histopathology departments across the UK had enough staff to meet demand.

Launched on BBC Radio 5 Live's *5 Live Investigates: Cancer diagnosis delays*, with an interview with the President and patients who had experienced delays in diagnosis, the report was also previewed in news bulletins across BBC programmes. Further coverage included BBC online, the *British Medical Journal, The Independent* and the *Health Service Journal.*

The report proved influential. Many parliamentarians cited the report's key findings in debates, and Jon Ashworth MP, Shadow Secretary of State for Health, used the findings at the 2018 Labour Party conference and to raise a question about rapid cancer diagnostic and assessment centres. Further questions were asked in parliament on workforce and the adequacy of staffing levels in histopathology departments, using evidence from the report.

Several cancer charities supported the College and helped us broaden our influence, using our statistics in their campaigns, reports and at their parliamentary events. The President was invited to take over the @CRUK_Policy Twitter feed and took part in the follow-up Twitter Q&A session organised by Cancer Research UK as part of its campaign on the diagnostic workforce. Other cancer charities, including Bloodwise, Jo's Cervical Cancer Trust, Bowel Cancer UK and The Roy Castle Lung Foundation, have continued to support our call to develop a sustainable pathology workforce that can meet the future needs of the health service and the patients it cares for.

Our workforce conference, Investing in the Laboratory Workforce of the Future, brought together participants to discuss workforce concerns and look for practical solutions to improve recruitment and retention.

Since the launch of the report, a pay premium has been introduced for histopathology trainees in England. The College is continuing to work with stakeholders on its implementation. There has been full recruitment to histopathology trainee places in the first round of recruitment in 2019, and the Migration Advisory Committee's recommendation placing medical practitioners, biological scientists and biochemists onto the shortage occupation list was agreed by government.

Resourcing the future

We are a responsible, sustainable organisation committed to delivering first-class services to our members. Across 2018–2019, the College has made the best use of its resources to finalise the build of a fantastic new setting for the College. We have also worked hard to improve our financial stability to achieve our strategic aims and charitable objectives.

Future proofing: a new College building
Over the past few years, we have worked hard to source a new building. The project to build a new hub for the College began with the sale of the lease for 2 Carlton House Terrace. Since then, we've been accommodated temporarily in the Royal College of Psychiatrists and were excited to move into our permanent premises in November 2018. We are grateful to the Royal College of Psychiatrists for accommodating us so warmly while our new College was being built.

The new building greatly improves facilities for members and provides an excellent base of operations for the College. The building has been designed to provide modern, purpose-built premises with excellent facilities for members, honorary officers and staff that will serve the College in the long term. With a conference area, meeting rooms of various sizes, and a members' area and library, the building will support our strategic objectives in the years to come.

We were delighted to receive two architectural awards for the build and to be shortlisted for many others.

Improving our digital offer for members
Across the year, we focused heavily on making incremental changes to our website and other digital services to improve functionality for members and create more automation to support staff in their day-to-day work. Through our digital user group, members worked closely with us to test new tools and functions, answer questions and contribute to consultations on the changes.

Alongside improvements to the way members can search and find information online, we launched a new documents in development tool – our new online consultation tool that enables members to comment on or agree with documents we put out for consultation. Our new tool makes it possible for members and authors to collaborate on the development of guidelines, curricula and best practice recommendations. This has increased dialogue during the development phases and improved transparency.

Supporting staff
The College also invested in its staff during 2018–2019, in part through training, development and wellbeing activities. Our staff are vital to the day-to-day running of the College and support our officers and volunteers in a myriad of ways. Training for staff, to improve services to members, included equality and diversity, customer service and writing skills for audience engagement. To support staff more broadly, we delivered activities for staff during mental health awareness week.

Improving our governance and lay input
We carried out a governance review in 2018–2019 to make sure our plans align to our strategy. Led by professional governance expert Robert Smith, of the Lay Governance Group, the review aims to ensure good practice in the running of the College while being cost efficient and ensuring that we give clear opportunities for consultation with members and the public. We must ensure that we maintain both a UK-wide focus and a global perspective.

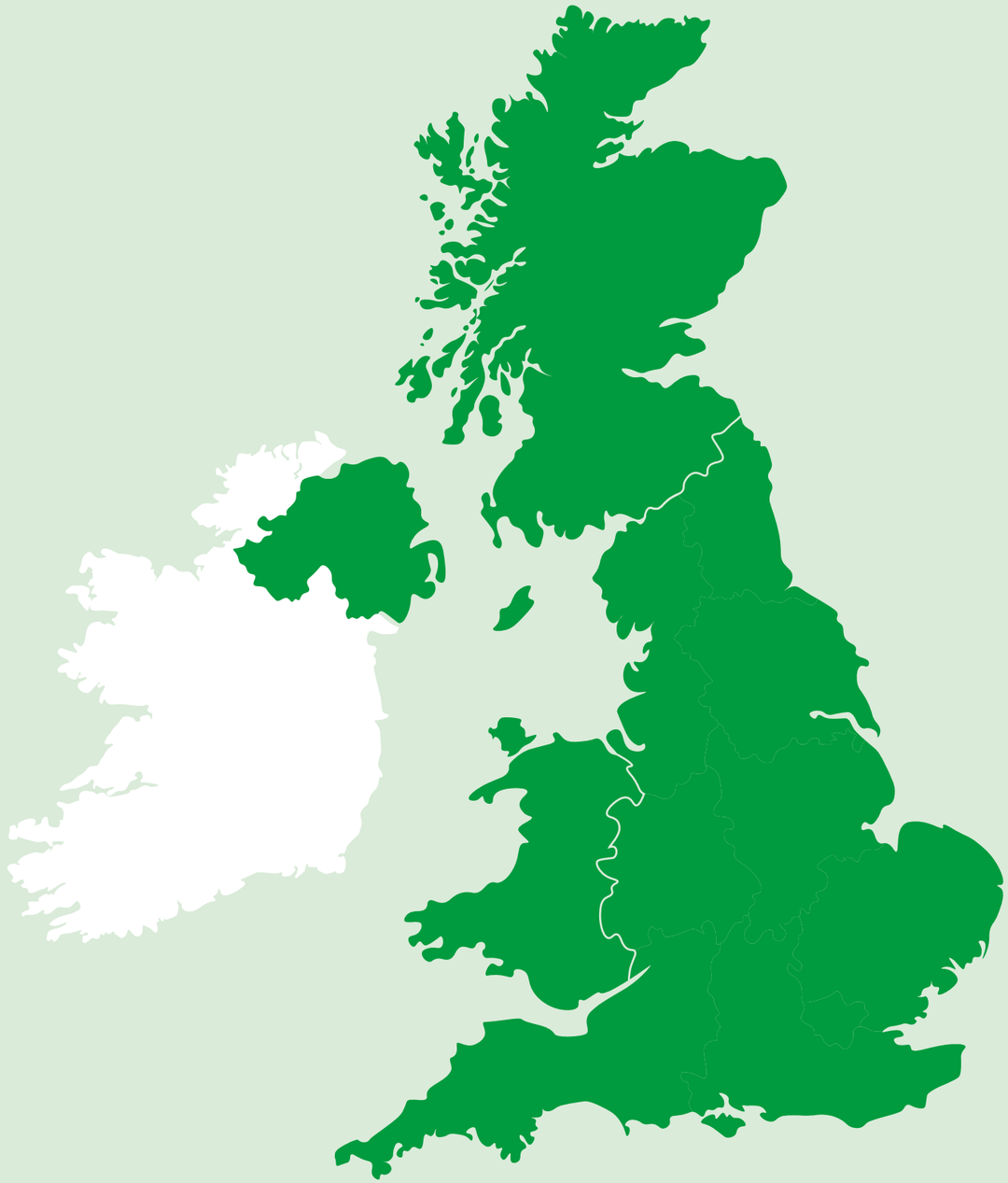
The Lay Governance Group has supported the work of the College by providing valuable contributions to a range of College committees, including those on international work, examinations and training. Two of the lay advisors also serve as trustees. The Chair of the group is a member of Council and the Vice Chair attends as an observer. This brings a useful diversity of thought and opinion, in addition to expertise on issues such as governance, finance and strategic human resources management.

Lay representatives have also taken up various roles essential to the functioning of the College. This has included providing a lay perspective to disciplinary panels, curriculum development and clinical guidance. This lay review often helps with clarity of language and structuring of key documents.

The group continues to bring a lay perspective to issues such as consolidation and future workforce planning in the NHS.

We value highly the input we receive from our lay advisors, and we are conscious of how much time and effort these volunteers give, helping us view our work through the lens of our patients and the public. We will continue to review how best we can ensure such high-quality support into the future.

Left: Delegates use the Elizabeth Room – which can hold up to 210 people for conferences – during the national cancer screening review workshop.
Right: The Library and Members' Area is open to all our members, providing space to work, catch up with colleagues and hold meetings.



We are regional

The College supports members across the four countries of the UK. We have representative councils that govern the individual nations of Northern Ireland, Scotland and Wales. In England, there is a Council plus a regional network of advisors.

Our work in the four nations of the UK
Our regional councils provide an effective way to involve members in the work of the College and to facilitate the exchange of information and ideas between officers and members. Although the regional councils work in different NHS systems, they share priorities and challenges. Our regional council members provide professional leadership in their regions and contribute nationally to the maintenance and development of pathology services and the quality of care that patients receive. This includes working to ensure the right workforce is recruited, trained and retained, that research is promoted and that pathology stays on the agenda.

The College produced a briefing on cancer workforce concerns in **Scotland** in collaboration with Professor Peter Johnston, Chair of the Scotland Regional Council. The briefing was disseminated to parliamentarians and stakeholders in Scotland, which led to a meeting with Sean Neill, Deputy Director for Health Workforce at the Scottish Government, with plans for joint working in the future. The Council also raised concerns about immunocytochemistry reagent supply post-Brexit.

In **Wales**, Dr Jonathan Kell, Chair of the Wales Regional Council, met Nick Thomas-Symonds, MP for Torfaen, during Bowel Cancer Awareness Month in April to discuss bowel cancer screening targets and the pathology workforce. Dr Kell also met Dr Rob Orford, Chief Scientific Adviser for Health in Wales, to raise the issue of pay parity for trainees in Wales. The College contributed workforce statistics to the Cancer Research UK diagnostic workforce paper for Wales, which was distributed to policy makers for cancer services.

The data suggested some concerning trends, including high vacancy rates and large numbers of staff expected to retire in the next five years.

In **Northern Ireland**, Council Chair Professor Ken Mills worked with the Regional Council to engage on topics including the Northern Ireland Pathology Network. The Council also has interactions with the other royal medical colleges in Northern Ireland – it works to highlight issues within the pathology workforce. The Council Chair responded to the Northern Ireland Committee's inquiry on funding priorities in the 2018–2019 budget for health. Concern was expressed that cancer patients in Northern Ireland had faced two years of inequitable access to cancer medicines compared to the rest of the UK. Following this, it was announced in September 2018 that cancer patients in Northern Ireland would have the same access to drugs being offered to patients in the rest of the UK.

The **England** Regional Council continued to create influential links with local stakeholders and build strong relationships with other key decision-makers to ensure that the College has a valued voice. The Council worked hard throughout the year to set up an effective network. It also polled Fellows on their awareness of Pathology Consolidation activities.

The President's lab tours have continued, with visits made across all four nations and the Republic of Ireland. This has proved a welcome opportunity for pathologists of all specialties and trainees to highlight their local excellence and also their needs and suggestions.

We are international

The College works with partners in the UK and overseas to raise awareness of the vital role played by pathology and laboratory medicine services in addressing global health issues. Our work also promotes pathology as a career among international medical students, and provides training and development opportunities to pathologists around the world.

New strategy for our international work
Following the end of the College's first International Strategy in 2018, we developed and published a new strategy in March 2019. Building on the firm foundations of the original, it ensures that efforts will be focused according to where the College has the potential to have the greatest impact. We will continue supporting international medical graduates through sponsorship for General Medical Council registration, the Medical Training Initiative and the International Trainee Support Scheme, which provide support to international trainees attempting the College's FRCPath exams.

The ARISE project
The College has become a partner in a €2m EU ARISE Project Consortium: a four-year multidisciplinary exchange programme aimed at building capacity and best practice in newborn screening, diagnosis and treatment of sickle cell disease. Our focus is on improving laboratory diagnosis and quality assurance systems for population screening, initially in Nigeria. The first step for us has been to assist in the development of a gap analysis and baseline assessment tool, which was sent out to all Nigerian reference laboratories. The information that was returned has helped with the formulation of laboratory capacity development plans, laboratory improvement plans and individualised personal development action plans for laboratory health workers. It has also aided preparations for a train the trainer event later in 2019.

International Pathology Day was established by the College in 2014 in partnership with a number of pathology and laboratory medicine institutions across the globe. It recognises and celebrates the contribution and important role played by pathology and laboratory medicine services in addressing global health challenges and improving the health outcomes of communities around the world.

For 2018, the College hosted a one-day conference in collaboration with *The Pathologist* magazine. The focus was the role of genomics in disease diagnosis, treatment and prevention. It explored the contribution of pathologists, scientists, and laboratory medicine professionals in the treatment pathway and care of patients, and how the results from research undertaken in the laboratory are directly used to develop new ways to treat patients and combat disease.

We also hosted a unique panel event that delved into unchartered territory for most pathologists: their crucial role in discovering new drug targets and therapeutics working within, or in collaboration with, industry. The fascinating discussion was chaired by Professor Jo Martin, President, and delivered by pathologists working in pharmaceutical and biotechnology industries.

Top: President Jo Martin introduces the theme for International Pathology Day 2018 – the role of genomics in disease diagnosis, treatment and prevention.
Bottom: Healthcare workers from across Nigeria at the ARISE project's 'train a trainer' workshop. The aim of the ARISE project is to improve the care and management of patients affected by sickle cell anaemia.

Looking ahead

The College will continue its work across 2019–2020 to fulfil the objectives set out in the 2018–2021 strategy. We will be enhancing our curricula and training offer, as well as piloting some new international programmes.

As a key part of our long-term efforts to develop and maintain standards in pathology, we will continue our review of the curriculum process, alongside the development of an undergraduate pathology curriculum, to ensure all medical students gain a sound understanding of pathology.

We will be expanding our academic activities programme, which will feature online learning resources and opportunities to meet, including joint meetings with specialist societies. We will develop further learning opportunities for members and trainees through the introduction of supervised learning events.

Our digital pathology strategy – launched in 2019 – will ensure we put in place the mechanisms to deliver College examinations using digital pathology, support the deployment of digital pathology across laboratories, and engage with industry partners in providing leadership and expertise. In 2019, we obtained funding from Health Education England for our Digital Now project. We will be scoping the implementation of digitised resources for learning as part of this work in 2019–2020 and beyond.

We will be piloting our international recognition framework for non-UK postgraduate specialty training and residency programmes. The pilot will take place in Iceland and we will evaluate its success and look to extend it to other countries over the coming years.

As part of our efforts to promote excellence and advance knowledge in pathology, we will be building on the success of our May 2019 CQI awareness month, by delivering a patient safety awareness programme in 2020. This will provide high-quality tools and resources to support patient safety initiatives in pathology. We will also be enhancing our quality improvement resources and activities, spanning audit tools as well as audit certification and mentoring schemes. We will be seeking opportunities to share learning from patient safety and quality improvement projects.

We will be collaborating with a range of organisations, including external quality assurance (EQA) providers, the United Kingdom Accreditation Service and the Medicines and Healthcare products Regulatory Agency, to improve the governance of EQA. This will include work through our EQA Stakeholder Forum to develop a proposal for an operational framework to deliver a review of technical EQA oversight.

Our work to support conferences and events will continue next year and we have some exciting events coming up. These include regular features such as our Pathology Summer School, Foundation Taster Event and New Fellows Ceremonies, as well as one-off and new events such as those on medical examiners, digital pathology and genomics.

We will launch our updated research strategy. Through work with members, trainees, academic partners and research networks, we will increase education in research and develop online continuing professional development for postgraduates. We will provide guidance for pathologists who will be involved in clinical trials and develop a proposal for a systematic reviews initiative to review diagnostic methods in pathology.

Through our public affairs and media efforts we will work to influence policy to improve outcomes for patients and the working environment for pathologists. A key arm of this will be additional workforce surveys and analyses to support our advocacy work. Our work with policy makers and other key stakeholders is vital to ensure continued support for the valuable work our members do across their specialties.

We will highlight the breadth and depth of pathology career choices by making use of the careers materials we created in 2018–2019. We will also hold a Discover Pathology Careers event at our new building, which will include interactive talks and Q&A sessions.

In order to ensure we suitably resource for the future of the College, we will continue to promote our building as a top-class conference and meeting centre.

Clockwise from top left: At the College's Foundation Taster Day, foundation doctors are given advice on how to apply for specialty training posts, what to expect from the application process and tips for a successful interview.
Research, like that carried out by the Chair of our Trainee Advisory Committee, Dr Matthew Clarke, into the molecular pathology of childhood brain tumours, is vital to the discovery and development of new treatments.
Events like our Careers and Ideas – and next year's Discover Pathology Careers – involve interactive talks and opportunities for students to engage with consultant pathologists and scientists.

Award winners

The College places a high value on excellence in pathology practice, research and education. We are again delighted to award our trainee medals for original research, and our Furness prize for public engagement. This year we have also created the RCPath Excellence Awards, which recognise the wonderful work being done across the UK every day to improve the contribution of pathology to patient care. Many congratulations to all our winners.

RCPath Excellence Awards
To celebrate excellence in pathology practice and promote high standards in pathology education, training and research to deliver the best patient care, we launched the RCPath Excellence Awards in 2019. These covered four themes: contribution to education, innovation in pathology practice, significant contribution to specialty and patient safety.

Nominations were invited for teams and individuals from all professional backgrounds and disciplines. The winners exemplify the best of pathology practice: they combine dedication and commitment, going beyond the day-to-day to improve the working lives of their colleagues and the health and care of patients.

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

Gold medal – Dr Paul Maciocia
Dr Paul Maciocia won the trainee research gold medal for his work on targeted immunotherapy for T-cell malignancies. His work, carried out at the Cancer Institute, University College London, has directly led to a first-in-human clinical trial of anti-TRBC1 CAR T-cells in relapsed/refractory T-cell lymphomas.

Silver medals
Dr David Dorward – Histopathology, Dr Justin Ching Ting Loke – Haematology, Dr Emma Boldock – Medical microbiology, Dr Ciaran Hutchinson – Smaller specialties (Prenatal, perinatal and paediatric pathology) and Dr Ben Jones – Clinical biochemistry.

Furness Prize for Science Communication – Navin Mukundu Nagesh and Bogdan Chiva Giurca
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. For the first time, the prize was jointly awarded to a team of two undergraduates. Navin Mukunu Nagesh and Bogdan Chiva Giurca, both studying medicine at the University of Exeter, were selected as the joint winners for their wide-ranging, innovative and inspiring public events, which they have developed and delivered together since 2016.

Medical undergraduate essay prize – Pat Lok
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. Entrants to this year's prize were asked to write an essay on the interactions between human and animal health. The winner was Pat Lok, from Anglia Ruskin University, who explored how pathologists of the future will need to prepare for the challenges posed by climate change, changing natural habitats and a growing population.

Images clockwise from top: Some of the winners of the RCPath Excellence Awards, pictured here at the College's Annual Dinner, where they were presented with their awards. President Professor Jo Martin presents Pat Lok with her essay prize. Navin Mukundu Nagesh and Bogdan Chiva Giurca with their Furness Prizes. Dr Paul Maciocia receives his College gold medal from President Professor Jo Martin.

Our specialties

Pathology is so broad that each pathologist practises in one of 17 specialties, contributing to patient care throughout life. Babies in the womb can be tested for inherited conditions, with all newborns screened for chemical abnormalities. Vaccination protects children from serious infections, while pregnant women are routinely tested for anaemia. Examination of urine for infections, checking blood for diabetes, diagnosing and treating blood cancers, and screening for bowel and cervical cancer also involve pathologists. Even after death, information from a post-mortem examination will help the living.

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.

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 aquired 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.

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.

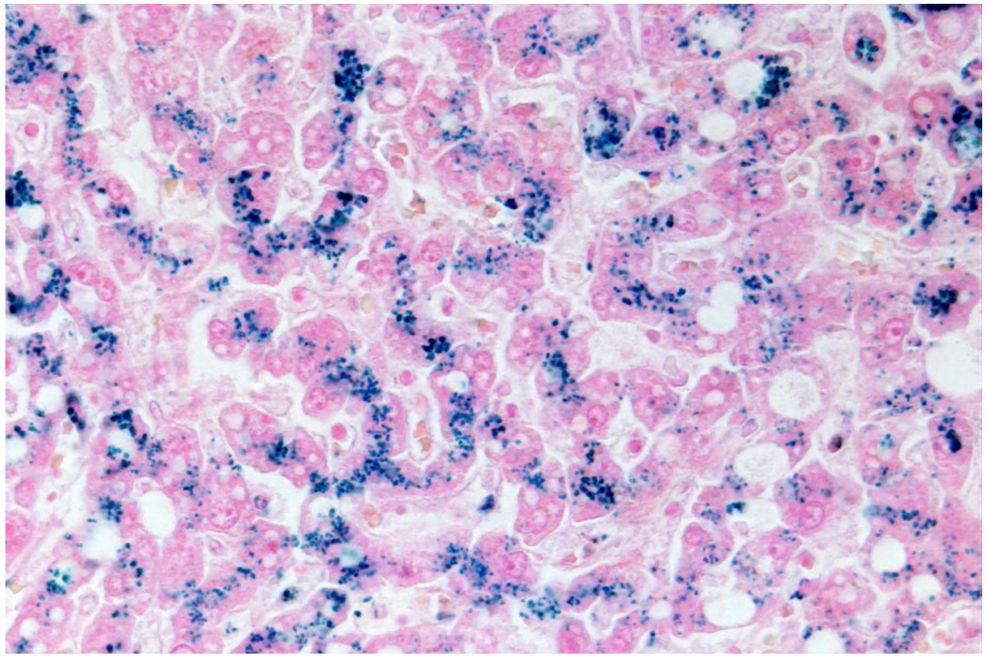
Reproductive science
Using increasingly sophisticated technology, scientists working in reproductive science can give hope to couples who are having trouble conceiving. They are experts in diagnosing infertility, as well as investigating and offering advice and insight on treatment options, such as in vitro 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. This may involve national or international searches. They also oversee the health and wellbeing of donors, the testing of blood for infections, and the management of hospital blood stocks.

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 chicken pox 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.



Top: Robin getting ready for venesection with Dr Ted Fitzsimons and nurses Laura Mitchell and Angela Murray.
Bottom: In haemochromatosis, excessive iron (stained blue, here, so it can be identified) is deposited in liver cells and characteristically concentrated in the cytoplasm around bile canaliculi.

Haematology: living with genetic haemochromatosis

Robin Galloway's story: I wouldn't say my job as a radio DJ is manual labour. Even back in the disc jockey dark ages, the only lifting I was required to do was to pop the needle on the record. Hardly a Herculean effort. So it was puzzling that in my 40s, some 20 years into my broadcasting tenure, I developed a dull aching pain in my knuckles.

Fast forward – no pun intended – and a blood test to check my iron levels led to a diagnosis of genetic haemochromatosis (GH). I was stumped as to what the condition was, but relieved to learn what was causing the pain. My father, a retired consultant paediatrician, was aware of GH and became convinced that it had contributed to my mother's death several years before. She had passed away after suffering severe joint pain for decades. She also had very bronzed skin – another symptom of GH. Whereas my mum displayed the symptoms, my dad carried a single copy of the defective gene without any manifestations and lived to 96.

Soon, I was assigned a specialist, Dr Ted Fitzsimons – whom I would affectionately come to refer to as Doc Fitz. A self-confessed ferritin fanatic, he would soon nickname me Iron Man. The Doc's quest was to get me 'Back to the Ferritin' – the serum ferritin (SF) levels I should have, that is. The way to achieve that was to remove vast quantities of blood. I had 500ml venesections every week for months. Slowly the SF levels began to return to normal and my transferrin saturation (Tsat) fell below 50%. I continue to have venesections every two to three months to maintain GH control.

I coped fairly well considering my phobia of needles! Even now, more than a decade and tens of litres of blood since diagnosis, I still wince at the thought of having a needle inserted into my veins, which I guess kind of kiboshes me donating my blood to those wonderful people at the transfusion service. Still, there are no needles in the radio studio anymore – all the songs are on hard drive. Good job, too!

Dr Ted Fitzsimons explains GH and iron toxicity
GH is the most common inherited disorder in our UK populations of north European extraction. One in eight are heterozygous carriers and one in 200 (like Robin) are homozygous for the C282Y mutation in the HFE gene. Awareness of GH remains low and for every patient diagnosed, some eight to ten homozygotes remain undiagnosed (like Robin's mother) and at risk of iron toxicity. GH causes increased iron absorption from the diet, leading to tissue iron overload and damage. This damage affects the liver, pancreas, skin and, as in Robin's case, the joints.
At diagnosis in 2007, Robin had severe iron overload with SF >2,000µg/l and Tsat 100%. He is now on a maintenance venesection programme to keep his SF <50µg/l and Tsat <50%. Fortunately, the arthritis in his knuckles has not progressed and does not stop him cycling or getting out of bed at 4.00am.

Why is GH so common in the UK?
It has been postulated that the HFE mutation conferred survival advantage from the Yersinia Pestis (plague) epidemic of the 1340s. This mutation might have spared Robin's ancestors from the Black Death, allowing 5.5 million Scots to enjoy his breakfast show.

While Robin spreads the word about GH to his listeners, an All Party Parliamentary Group has been formed to help him do this and improve awareness and treatment of GH.

Microbiology: managing endocarditis

Having been healthy all his life, much of which he spent as an academic doctor, Richard Himsworth has recently had problems that have been tricky to tease apart. He had his aortic valve replaced in 2008 and made a good recovery. However, he experienced breathlessness – probably due to cryptogenic organising pneumonia (COP) – for which he was taking steroids. Despite this, he was able to lead a normal life, with activities in London and Cambridge, and holidays to Sicily – until October 2018.

Richard's story

Over three days in October 2018, I didn't feel quite myself. I was muddled, and had difficulty finding the right words, so my wife took me to the emergency department. There was nothing to find on clinical examination, and a CT scan of my brain was normal. The paramedics had recorded a fever, and my white cell count and C-reactive protein were raised, all pointing towards an infection. A urine dipstick was abnormal, so I was discharged home with a five-day course of co-amoxiclav for a possible urine infection.

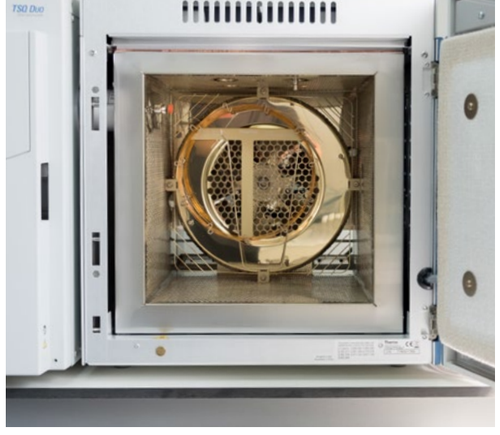
The following day I received a phone call from the hospital to say that they had grown enterococcal bacteria from my blood sample, necessitating my return to hospital. An ultrasound scan of my heart showed thickening of my valve replacement, which, together with the bacteria in my bloodstream, pointed towards bacterial infection of my replacement valve – this is called infectious endocarditis.

The management of endocarditis hasn't changed much since I was a junior doctor. I needed to have six weeks of intravenous antibiotics, which didn't fill me with joy. I was initially on the infectious diseases ward (tenth floor) with a lovely view. I was allowed out for short visits, then on weekend leave. Antibiotics can have side effects, and I had problems with rashes and kidney function. Other choices of antibiotics were limited, but I was able to be transferred to the OPAT (outpatient antimicrobial therapy) service for a new once-daily antibiotic, daptomycin.

All went well initially, and I enjoyed being at home, but unfortunately I ran into problems with increasingly severe breathlessness. The likely diagnosis was eosinophilic pneumonitis, a recognised side effect of daptomycin, so my antibiotics were changed yet again and I came back into hospital for the rest of my course. I am still a little breathless, and have developed an ankle ulcer, but from the endocarditis side of things, all appears to be well.

The consultant's view: Dr Fiona Cooke

Richard's blood samples were incubated urgently, looking for growth of bacteria. One of the biggest recent advances has been the MALDI (matrix-assisted laser desorption/ionisation) machine for rapid identification of bacteria. Previously, we would have to wait 24 hours for bacterial growth on an agar plate. We can now get a result in four hours, allowing timely advice on clinical and antibiotic management of patients with infections. When Richard's samples flagged positive, we saw bacteria – specifically, Gram-positive cocci in short chains – and the MALDI identified these as enterococci, which caused Richard's endocarditis.



Left: Richard with nurse Anna Mayhew, consultant microbiologist Fiona Cooke and OPAT fellow Christian Cruz Hofling.
Right: A mass spectrometer – like this one – can be used to identify specific bacteria and fungi species. This procedure is much faster and more accurate than traditional agar plates.

The management of endocarditis usually involves four to six weeks of intravenous antibiotics, although recent studies suggest short courses may sometimes be effective. We have had an OPAT service for ten years, allowing patients to go home and attend hospital once a day for antibiotic therapy. Our hospital has also trained patients and their relatives to administer intravenous antibiotics at home.

All current OPAT patients are discussed at the weekly multidisciplinary meeting attended by the duty consultant microbiologist. We provide extra information about additional antibiotic options, as up to 10% of OPAT patients develop antibiotic allergies. Microbiologists are trying to reduce the use of antibiotics to prevent antimicrobial resistance, but when people like Richard need them, we make sure they are on the right drug, at the right dose, by the right route for the right length of time.

Neuropathology: identifying and treating nemaline myopathy

Allyson Taylor was a secondary school teacher who was enjoying retirement until, out of the blue, the muscles controlling her arms and legs became progressively weaker over 18 months. Allyson was understandably desperate to find out what was wrong with her. Primary muscle diseases are generally rare and, occasionally, the pathway to diagnosis can take years. The answers came from Dr Monika Hofer, consultant neuropathologist.

'At her worst, Allyson's swallowing was badly affected and she needed to have a feeding tube implanted… She was so weak that she could only walk a few steps. Now, a year on, she's walking long distances, but still gets tired. Her feeding tube has been removed and she only has minor swallowing problems.'
Dr David Hilton-Jones

Dr Hofer's perspective
Allyson was under the care of Dr David Hilton-Jones, consultant neurologist and a muscle specialist with more than 40 years' experience. He requested removal of a small piece of muscle tissue (a biopsy) from Allyson's left shoulder, which can be done under local anesthetic. As a muscle pathologist, I perform my own biopsies, and so I met Allyson for the first time in June 2017 when she came to the hospital theatre. This gave me the opportunity to get to know her and learn about her illness. Allyson's history was striking as much for its sentiments as its specifics; for example, she was upset by not being able to cycle with her grandchildren. She was so anxious for an explanation that she had contacted former pupils who had gone on to medical school, via Facebook, seeking their ideas.

On examining the biopsy sample under the microscope, it showed only some muscle fibre degeneration. This finding corresponded to the clinical evidence of loss of muscle bulk, but it didn't explain why Allyson was experiencing such weakness. Dr Hilton-Jones and Allyson agreed to repeat the biopsy from another muscle – knowing from experience that some disease processes are patchy and may not be seen in a single biopsy sample.

On examining the new biopsy sample, I saw something that led directly to the diagnosis. Many fibres contained aggregates of nemaline rods (tiny little sand-like structures). Alone, these are non-specific, but they can be a characteristic feature of some childhood genetic myopathies, in which the muscle fibres do not function properly. I also knew that nemaline rods had been reported in late-onset acquired (non-genetic) myopathies and a little delving led me to the original paper from 1966, which described the disease called sporadic late-onset nemaline myopathy (SLONM) – a very rare disease, with a limited amount of information in the scientific literature. The disease is progressive and causes muscle weakness that affects the ability to swallow, makes breathing difficult and can affect the heart, making it harder for blood to be pumped around the body.

I immediately contacted Dr Hilton-Jones, who confirmed that the clinical context would fit. Allyson was also known to have an abnormal protein in her blood called a monoclonal gammopathy of uncertain significance (MGUS). MGUS is fairly common in older patients and usually doesn't cause harm, but it is known to be associated with SLONM.
The use of electron microscopy, which provided very high resolution images, confirmed that the structures in the muscle biopsy were indeed rods. We then liaised with a team in Paris (led by Professor Olivier Benveniste) who had a few months earlier published a research paper on SLONM, and they agreed with our findings. The exact underlying pathophysiology of this disease is not clearly understood, but it is thought to entail a malfunction of the immune system. It is not clear what leads to the formation of the nemaline rods.

The recommended treatment for SLONM with MGUS involves transplantation of blood stem cells from the patient's own bone marrow, following suppression of the immune system with high doses of melphalan, a chemotherapy drug. Allyson was referred for this treatment as soon as we were sure of the diagnosis, and received a stem cell transplant under the care of Dr Karthik Ramasamy, consultant haematologist at the Churchill Hospital, Oxford. She is now receiving follow-up monitoring by the haematology team, since there is a small risk that her MGUS may develop into myeloma, a type of bone marrow cancer.

One of our Oxford medical students, Casmir Turnquist, with Allyson's consent, has already presented a poster raising awareness of this rare disease at the annual British Neuropathological Society meeting in London earlier this year.

Allyson's experience
In spring 2015 I was fit and healthy; my hobby was golf and I played at competition level. During that summer I became progressively weaker and experienced back pain and fatigue. Gradually, I became less and less mobile and had to give up my golf.

Having tried all manner of treatments I was referred to a range of specialists and tried Alexander technique, Pilates, aqua aerobics and physiotherapy. I saw an osteopath and even tried acupuncture! I saw a haematologist, who diagnosed the MGUS, a rheumatologist, neurologist, back surgeon, cardiologist and then eventually, in May 2017, it was suggested that I be referred to Dr Hilton-Jones. He had the advantage of considerable experience and also the benefit of the team working with him. He sent me for the electrical tests and then the biopsies as described by Dr Hofer.

In September 2017 I was overjoyed to receive a diagnosis at last. Unfortunately, the previous two and a half years had resulted in considerable weakness and, before I started treatment, my condition deteriorated even more sharply. By Christmas 2017, my diet was soups and milkshakes; I had great difficulty with stairs and slopes and could walk only a very short distance. My family were extremely worried.

Following my stay in hospital my mobility deteriorated further, but after the initial three months' recovery time I was able to walk again. I gradually built up the distance I could walk and now I can walk several kilometres, so long as the route is flat. Stairs are still very difficult but I am back to the gym and enjoy aqua aerobics. When I'm in water my body feels free. I enjoy yoga stretch, although my teacher does have to help me up off the floor afterwards.

I know that I will never play golf again, nor undertake our previous holiday activities of climbing hills and bike rides but, in the words of my five-year-old granddaughter, I don't have to go to heaven so soon because now I have curly hair!

Allyson Taylor (left) with Dr Monika Hofer.

Cellular pathology – histopathology: how post mortems benefit the living

The charity Cardiac Risk in the Young (CRY) funds the CRY Centre for Cardiac Pathology (CRY CCP), based at St George's Hospital in London, which is an international cardiac referral centre for bereaved families who have suffered a sudden cardiac death. It helps families like Samuel Moodey's to understand why a loved one has passed away, helping them to avoid unnecessary anxiety and uncertainty.

Cardiac Risk in the Young and the Centre for Cardiac Pathology

CRY CCP's founding grant in 2008 was thanks to the extraordinary fundraising efforts of a Surrey family who lost both a father and teenage son to sudden cardiac death. Father of three Howard English was 32 when he collapsed and died while playing rugby. Ten years later, his eldest son Sebastian died, also playing rugby, aged just 15. After post-mortem investigation, it was found both father and son had suffered from the same genetic condition known as ARVC (arrhythmogenic right ventricular cardiomyopathy).

These cases highlighted the importance of correct pathology after a sudden death, to ensure other family members are appropriately screened and treated by experts. The family and friends of Sebastian and Howard have raised over £700,000 to help offer this service to other families – a service that could have saved Sebastian's life.

The service is led by expert cardiac pathologist, Professor Mary Sheppard, with a team of staff funded by CRY. Young sudden cardiac death is often the first symptom of an undetected cardiac condition, and specialist pathology is required to identify the disease and bring the genetic implications of a potentially inherited disorder to the attention of relatives. When a cause of death is 'unascertained' and the deceased is aged 35 or under, the centre will provide a free, fast-track cardiac diagnostic service. CRY aims to remove the unnecessary suffering of the family by reducing the wait to know what has caused the death. The post-mortem examination and report from the centre will usually be completed within two weeks and a significant majority of coroners now routinely refer to this centre when there is a young sudden cardiac (or unascertained) death.

'Our work is a vital link for families who are looking for a cause of death in a loved one who has suffered a sudden cardiac death. We guarantee to provide an answer within two weeks of getting the case. We provide the cause of death in this timeframe and avoid anxiety and uncertainty at a very stressful time for the family.'

Professor Mary Sheppard

Samuel Moodey

On 21 October 2018, Samuel (Sam) Moodey died just before his 28th birthday. He was out running with his wife, Emily, when he collapsed. Paramedics were called and he was 'shocked' several times before being taken to St Bartholomew's Hospital, where doctors were unable to save him. Professor Sheppard was consulted to help understand Sam's cause of death and, through the post-mortem investigations, found that it was due to ARVC. If this diagnosis had not been made by Professor Sheppard and her team, Sam's family might never have known the cause of death.

Since this is a genetic condition, there is a 50% chance that other blood relatives have the same condition. Sam's family have now been referred to the CRY Centre for Inherited Cardiovascular Conditions to see if they are at risk too. As well as helping a family understand the cause of death, expert cardiac pathology informs a family whether close blood relatives need to be screened, and also provides vital information for the cardiologist who is screening the family about the type of investigations they will need.

The funding for the centre has allowed more than 2,200 expert cardiac post mortems on young people (aged 35 and under) to have been conducted since the centre was founded. Professor Sheppard and her team have built up the largest database of expert cardiac investigations of young sudden cardiac deaths in the world. This has enabled groundbreaking research that has transformed the understanding of young sudden cardiac death in the UK and internationally.

'Without the expert analysis and advice from Professor Sheppard following the death of my son Sam, we would not have been aware of the true cause of his death. The initial cause of death was given as myocardial infarction (a heart attack) but after my request for tissue samples to be sent to the CRY CCP and to delay issuing the death certificate, it was found that the cause of his death was arrhythmogenic cardiomyopathy. Since then two family members have been found to have this condition who would not otherwise have known. To me, it seems clear that CRY CCP saves lives and I am grateful beyond words for their service and support.'

Sally Moodey, Samuel's mother

Professor Mary Sheppard with colleague in the CRY Cardiac Pathology Laboratory.

‘The existence of such a hospital in this medically deprived region was a lifebuoy for hundreds of cancer patients who previously had to travel to Cairo to get the required medical service. SOH saved me time and money and I am now confident I will get the proper care.’
Girgis Phot

Top: Girgis Phot.
Bottom: The team at SOH: Dr Nesreen Magdy, Dr Nahla Gouda and Dr Hossam Abdallah.

Cellular pathology: a rare cancer, internationally diagnosed

In mid-2017, Girgis Phot noticed the appearance of multiple itchy skin lesions on his genitalia. He sought medical advice and received multiple antibiotics with no improvement. Six months later, the sole of his left foot showed the same lesions, which progressed to the dorsum of both feet, and he also developed multiple painless groin swellings. Living in Luxor, Egypt, he sought medical advice at a specialised centre and visited Shefaa El Orman Oncology Hospital (SOH) for the first time in January 2019.

The medical oncology team at SOH immediately started full laboratory and radiological investigations. They suspected Kaposi sarcoma and, although there was no history of sexually transmitted infections, intravenous drug injections or blood transfusions, HIV testing was included in the investigations list. HIV tests were repeated twice and were consistently negative for both HIV-1 and -2.

The radiology team found that Girgis’s chest x-ray and abdominal ultrasound showed no significant abnormality, yet the PET-CT scan revealed multiple active enlarged cervical, abdominal and inguinal lymph nodes, and lesions above the left kidney.

The surgical team carried out an inguinal lymph node excision biopsy for histopathological evaluation. In the histopathology laboratory, a detailed pathological analysis of the specimen, including immunoprofiling, showed that Girgis had double pathologies within the lymph node, including both nodular lymphocyte-predominant Hodgkin lymphoma (NLPHL) and intranodal Kaposi sarcoma.

Kaposi sarcoma is a vascular disorder that occurs mainly in HIV-infected patients. Lymph node involvement is a rare event in classical Kaposi sarcoma but occurs in African and epidemic forms. The intranodal form of Kaposi sarcoma is more frequently observed in children and adolescents, independent of HIV status. The antibody for immunostaining for the Kaposi sarcoma-associated virus (human herpes virus 8 [HHV-8]) is not available at SOH or other laboratories in Egypt to our knowledge. To gather proof for this rare diagnosis, unstained slides were sent to a UK-based laboratory to perform the HHV-8 test with the help of Professor Mona El-Bahrawy, Imperial College London, confirming the diagnosis. The presence of both NLPHL and Kaposi sarcoma within the same lymph node is extremely rare and only five similar cases have been reported in the English literature; one was HIV negative, two had AIDS and two had no documented HIV status.

Improving Egypt’s medical services, and with them the care those like Girgis receive

For many years, Upper Egypt suffered from a lack of comprehensive medical services, especially for cancer patients. SOH is the first charity oncology hospital in this region, established in 2016 to meet increasing demand for this service in Upper Egypt. In recognition of the pivotal role of laboratory medicine, SOH provided all the support to establish a histopathology laboratory operating to international standards. The SOH histopathology laboratory provides an excellent service – it is an exemplary referral laboratory and training hub.

Girgis has now finished two cycles of chemotherapy and is showing a good response to treatment – there has been a decrease in the size of the enlarged lymph nodes and the number of skin lesions. Two more cycles of chemotherapy are scheduled and further management will be planned on review of his status following completion of chemotherapy.

Veterinary pathology: Crumble's eye tumour

Veterinary pathology has a key role in the diagnosis of diseases in animals. Alex Civello is a veterinary pathologist working in a private laboratory that specialises in veterinary ocular pathology. He sees eye cases from a wide range of species, and here he describes a case from a dog called Crumble.

Alex Civello: finding and treating the cause

Crumble is a Lhasa Apso dog. Her owner took her to the vet because one of her eyes looked red and sore. The vet could see that there was a tumour in the back of the eye. There was also increased fluid pressure inside the eye (glaucoma). This was detected with a test using a tonometer, a hand-held 'pen' that is used to make momentary contact with the cornea.

There was bleeding inside the eye and Crumble had no vision from it – the vet decided it was impossible to save it. The vet opted to surgically remove the eye, and the eye was sent to us in the laboratory for diagnosis.

When I dissected the eye, I could see the tumour and the bleeding into the eyeball that it had been causing. I examined the tumour under the microscope and diagnosed it as an iridociliary adenoma. These are the second most common tumours to arise in the eyes of dogs, after melanoma, which is the most common. They usually occur in older dogs. Fortunately, they are benign and do not spread to other parts of the body via the blood. I could advise the vet that Crumble was cured of her tumour, and there is no increased risk of the other eye developing glaucoma or becoming blind.

There are many eye conditions that can have consequences for the other eye or the dog's overall health. In Crumble's case it was good news that this was a benign tumour and she was cured by the surgery she had. Sometimes, malignant tumours (ones that are cancerous) can arise in or spread to the eye from other organs in the body, before being detected anywhere else. Getting a rapid pathological diagnosis directs the vet towards appropriate further investigation and, in many cases, treatment, such as surgery or chemotherapy.

Glaucoma in dogs

When glaucoma is caused by another problem in the eye, such as inflammation or a tumour, it is known as secondary glaucoma. Dogs can also develop forms of inherited primary glaucoma. The main problem with primary glaucoma is that it usually affects both eyes, although commonly not at the same time. Therefore, if it is diagnosed, the vet will know to monitor the other eye closely and may decide to use eye drops to try to delay the onset.

Certain breeds of dog are more likely to develop primary glaucoma; there are screening programmes for glaucoma and other hereditary eye disease in dogs to help inform a decision on whether a certain dog should be used for breeding.

Alex Civello uses his microscope to diagnose issues such as iridociliary adenoma, a benign tumour like the one found in Crumble's eye.

Governance: Council and Trustee Board (as at 30 June 2019)

We welcome and thank those who contribute their wisdom and time to our profession.

Trustees

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

Mr Robert Smith – Lay Trustee

Mr Tommy McIlravey – Lay Trustee (until 30 June 2019)

Ms Jill Gauntlett – Lay Trustee (from 30 June 2019)

Regionally elected members (for England)

Dr Paul Barrett – England, North

Dr Adrian Bateman – England, South

Professor Sebastian Brandner – England, London

Dr Laszlo Igali – England, East Midlands

Nationally elected members

Dr David Jenkins

Dr Mike Osborn

Dr Anne Thorpe

Dr Darren Treanor

Co-opted members

Professor Kate Gould – Chair, England Regional Council

Professor Roberto La Ragione – Chair, Veterinary Pathology Specialty Advisory Committee (SAC)

Dr John Snowden – Chair, Intercollegiate Committee on Haematology

Avril Wayte – Chair of the Clinical Science Committee

Vacant – Chair, Genomics SAC

Dr Alan Fletcher – Chair, Medical Examiner's Committee (until 5 March 2019)

Observers by invitation

Dr Maadh Aldouri – Clinical Director of International Activities

Dr Paula Bolton-Maggs – Chair, Transfusion Medicine SAC

Dr Nigel Brown – Chair, Toxicology SAC

Professor Philip Cachia – Clinical Director of Training and Assessment

Dr Matthew Clarke – Chair, Trainees' Advisory Committee

Dr Andrew Day – Clinical Director of Examinations

Dr Bill Egner – Chair, Immunology SAC

Professor Hilary Humphreys – Dean, Faculty of Pathology, Royal College of Physicians of Ireland

Lt Col Emma Hutley – Military Observer

Dr Sacha Kolar – Consultant Forensic Pathologist

Dr Berenice Lopez – Clinical Director of Safety and Quality

Dr Jo McPartland – Chair, Pre/Perinatal/Paediatric Pathology SAC

Professor David Roberts – Chair, Research Committee

Dr Kathryn Ryan – Chair, Clinical Biochemistry SAC

Dr Deborah Sage – Chair, Histocompatibility and Immunogenetics SAC

Professor Richard Tedder – Chair, Medical Virology SAC

David Wells – Institute of Biomedical Science Representative

Dr Lorna Williamson – Clinical Director of Publishing and Engagement

Lay Governance Group

Mr Tommy McIlravey – Chair (until 30 June 2019)

Mrs Mary Ann Cameron

Ms Jill Gauntlett (from 30 June 2019)

Mr Chris Jelley

Mr Stephen Pattison

Mr Robert Smith

Ms Edna Young

Finances

Total income for the College amounted to £6.1m and expenditure totalled £6.3m, with a resulting deficit for the year of £200k. It was always envisaged that a deficit would be made for the financial year due to the costs incurred by running two premises: our temporary location in Prescot Street and new premises in Alie Street.

Work on the construction of the new premises at Alie Street has mostly finished, which is a fantastic achievement. Practical completion of the floors from the basement to the fourth took place on 19 November 2018, with the upper floors handed over on 30 April 2019. Some final works are still ongoing with regard to the mechanical and electrical systems, and general snagging, but it is expected that these will be concluded shortly. There were some delays with the handover of the building from the contractor but the cost of the works has come in under budget.

The College moved into our new building over the weekend of 16–19 November with no unplanned downtime. The lease on the temporary office space at the Royal College of Psychiatrists has now come to an end and successful negotiations were concluded that saved £43k against the expected cost. The move to Alie Street was a one-off situation, but one that had considerable extra costs associated with it. There were also the costs of the move between the two buildings.

In January 2019 the College, via its wholly owned subsidiary company RCPath Trading Limited, commenced the commercial conference centre activity called Events@No6. As expected for the year to 30 June, this operation made a loss. As a start-up business, the sales and marketing operations commenced before we moved into the premises and were open for business, with various staff posts established in advance of generating revenues. Additionally, the revenue from the room hire and catering has been slower than expected, partly due to the delay in being handed the building from the contractor, and partly as a result of the difficult general economic situation.

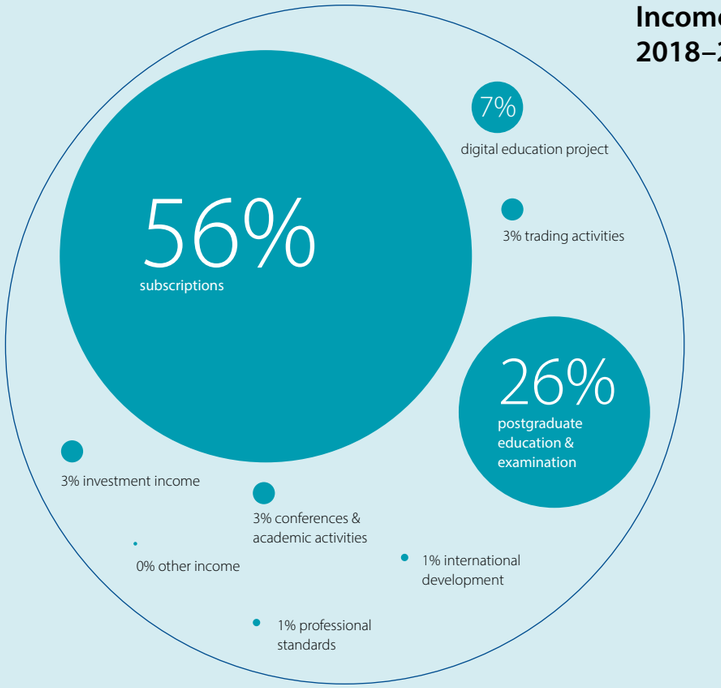
The largest source of income in 2018–2019 came from subscriptions, amounting to £3.4m. This includes the newly created membership category of medical examiners, with numbers building slowly as this is launched.

2019 saw investment markets rebounding and they have only had one down month so far. Risk appetite is being driven by the expectation that the Fed will now cut rates more than once this year, after a policy pivot in January, and by expectations that the US–China trade and technology war will be resolved favourably. Against this volatile backdrop, the College's portfolio delivered a total return of +8.7% in the 12 months to 30 June 2019. Over the longer term, the portfolio has delivered +35.1% and +48.1% on a three- and five-year timeframe, respectively.

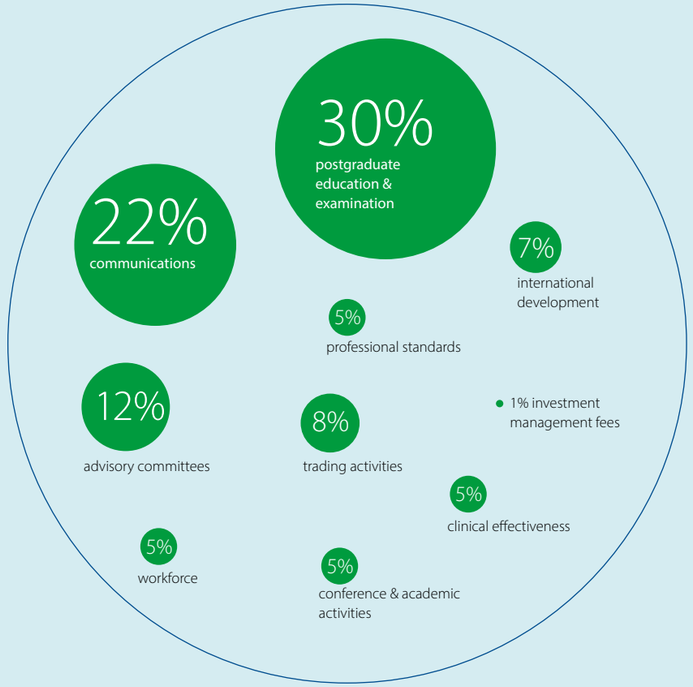
The accounts published overleaf are not the statutory accounts, but a summary of information relating to both the statement of financial activities and the balance sheet. The full financial statements have been audited and contain an unqualified audit report. They were approved by the Trustee Board on 25 July 2019 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
25 July 2019

Income 2018–2019



Expenditure 2018–2019



Summary of accounts 2018–2019

Consolidated Balance Sheet
as at 30 June 2019

	2019 £	2018 £
Fixed assets		
Tangible assets	40,596,456	32,597,355
Investments	5,164,735	5,685,228
Total fixed assets	**45,761,191**	**38,282,583**
Current assets		
Stocks	13,733	14,132
Debtors	684,276	920,413
Cash at bank and in hand	6,517,396	5,528,711
Total current assets	**7,215,405**	**6,463,256**
Liabilities		
Creditors		
Amounts falling due within one year	(4,346,380)	(4,298,018)
Provisions for liabilities	—	(100,000)
Net current assets	**2,869,025**	**2,065,238**
Total assets less current liabilities	**48,630,216**	**40,347,821**
Creditors		
Amounts falling due after more than one year	(11,465,726)	(3,321,179)
Total net assets	**37,164,490**	**37,026,642**
The funds of the College		
Unrestricted funds – general funds	6,761,512	6,821,049
Unrestricted funds – designated funds	29,303,960	29,540,478
Restricted funds	1,099,018	665,115
Total College funds	**37,164,490**	**37,026,642**

The financial statements were approved by the Trustee Board on 25 July 2019 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 25 July 2019 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
25 July 2019

Consolidated Statement of Financial Activities
for the year ended 30 June 2019

	Unrestricted General Funds £	Unrestricted Designated Funds £	Restricted Funds £	Total Funds 30 June 2019 £	Total Funds 30 June 2018 £
Income					
Donations & legacies	10,982	-	2,923	13,905	4,172
Charitable activities					
Subscriptions	3,387,800	-	-	3,387,800	3,238,655
Postgraduate education & examinations	1,531,481	-	35,260	1,566,741	1,416,216
Digital education project	-	-	410,000	410,000	-
International development	21,287	-	52,419	73,706	29,505
Conferences & academic activities	157,322	20,845	-	178,167	221,457
Professional standards	64,054	-	-	64,054	60,395
Communications	4,456	-	-	4,456	5,615
Trading activities	196,411	-	-	196,411	78,771
Investments	173,076	-	5,997	179,073	164,342
Other	16,376	-	-	16,376	689
Total income	**5,563,245**	**20,845**	**506,599**	**6,090,689**	**5,219,817**
Expenditure					
Raising funds					
Trading activities	508,230	-	-	508,230	46,043
Investment management fees	28,826	-	-	28,826	25,557
Charitable activities					
Postgraduate education & examinations	1,885,844	-	29,009	1,914,853	1,575,517
International development	460,120	-	1,467	461,587	436,905
Conferences & academic activities	250,669	32,191	-	282,860	306,015
Research	-	-	2,006	2,006	13,334
Professional standards	326,857	-	-	326,857	311,775
Clinical effectiveness	301,960	7,429	29	309,418	266,759
Workforce	334,125	-	-	334,125	307,002
Communications	1,257,137	138,089	5,949	1,401,175	1,227,916
Advisory committees	718,178	2,337	-	720,515	583,149
Total expenditure	**6,071,946**	**180,046**	**38,460**	**6,290,452**	**5,099,972**
Net income / (expenditure) before net gains on investments	(508,701)	(159,201)	468,139	(199,763)	119,845
Net gains on investments	335,851	-	1,760	337,611	315,252
Net income / (expenditure)	(172,850)	(159,201)	469,899	137,848	435,097
Transfers between funds	113,313	(77,317)	(35,996)	-	-
Net movement in funds	(59,537)	(236,518)	433,903	137,848	435,097
Reconciliation of funds:					
Total funds brought forward	6,821,049	29,540,478	665,115	37,026,642	36,591,545
Total funds carried forward	**6,761,512**	**29,303,960**	**1,099,018**	**37,164,490**	**37,026,642**

The Royal College of Pathologists
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