The Bulletin

of The Royal College of Pathologists

Number 171 July 2015

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

In this issue

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The College's quarterly membership journal, The *Bulletin*, is the main means of communications between the College and its members, and between the members themselves. It features topical articles on the latest development in pathology, news from the College, as well as key events and information related to pathology.

The *Bulletin* is delivered free of charge to all active College Members, retired Members who choose to receive mailings and Registered Trainees, and is published four times a year, in January, April, July and October.

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The Royal College of Pathologists
4th Floor, 21 Prescot Street London E1 8BB

telephone 020 7451 6700
email info@rcpath.org
website www.rcpath.org

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On the cover: Life through a lens – pathologists at the Royal Blackburn Hospital captured this image of a scabies mite using nothing more than a smart phone. We look at how the College is keeping pace with changing communications. Photograph by Stephen Midghall and Dr Sandra Long at the Royal Blackburn Hospital.

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

EDITORIAL

Dr David Bailey

The Communications issue

How many times have people asked you what you do for a living? It seems to happen to me every week or so, usually at a dinner party. My answer depends on several things; mostly how much I like the person who asked the question, but also whether I'm tired, irritated or having fun.

The possibilities are twofold: if I like the person who is asking and I'm having a good time, I tell them that I work in cancer diagnosis, trying to give clinicians the best possible information about a patient's condition so that they can make the best possible decisions and plans. The second option, which I tend to save for situations where I don't want to prolong the conversation, involves the words "cut up dead bodies for a living".

Tell a member of the public that you are a pathologist and they immediately think that you work as a CSI (crime scene investigator) or forensic pathologist. They compare you to Amanda Burton or, more recently, Emilia Fox and say how wonderfully exciting it must be to investigate murders! The power of the media, and especially television, cannot be underestimated.

Explaining that there are 19 different pathology specialties and that autopsies are actually just a small part of what a histopathologist is about doesn't really help that much. Their eyes start to glaze over at this point and their attention wanders. I've had better results using the "I work in cancer diagnosis" line early on; that tends to ignite a spark of interest and you have yourself a window of opportunity to really get across what being a pathologist is all about.

But if you think that's hard, then try explaining to a politician or member of the public why autopsies are important and indeed vital to the health of the living. Well, there is an article in this issue of the *Bulletin* that is the start of trying to do just that. The Coronial autopsy service is on the verge of collapse in many places across England and Wales. The commentary on our recent survey of Fellows and trainees is the start of a campaign aimed at explaining to the Government why they should take positive steps to redress the imbalance between service need and our capacity to deliver. Two previous government-commissioned reviews of the forensic pathology service in 1989 and 2003 provoked limited responses, and Peter Hutton's recently completed review of the forensic pathology and coronial autopsy service in England and Wales has (at the time of writing) yet to be published or its recommendations addressed in any way.

At the Clinical Management and Leadership Course at Keele University this year, I was asked to speak to pathology and radiology trainees about securing a consultant post. I tried to be as comprehensive as possible, dealing with pre-interview visits as well as the consultant interview, and included a section on what to look for in a consultant post. When it came to prioritising what was important, I used the slide below.

As far as I'm concerned, all of the other usual considerations are secondary: geography, type of department/post and money, amongst others. Sure, they are important, but 17 years down the line from being appointed, there is only one thing that would make me walk away from the only consultant post I have ever held, and that is insurmountable difficulties with my colleagues.

I am something of an anomaly these days in that I've been in the same post for that long. When I first became a consultant, hardly anybody moved posts, unless it was to go abroad. There have been difficult times but, like a strong marriage, the key to it all has been good communication.

Many of the articles in this issue of the *Bulletin* are about effective communication and the College's continuing work to educate others about 'pathology'. The College provides science communication training to Fellows and trainees, which I undertook earlier in the year. It was one of the most effective days of training I have experienced, and I commend it to anyone who is interested in improving his or her performance on this front. To quote Buddha: "Whatever words we utter should be chosen with care for people will hear them and be influenced by them for good or ill."

Dr David Bailey
Vice President for Communications
Guest Editor

What to look for in a consultant post

Dr Suzy Lishman

Medical examiners, meetings and medals

It's been a funny few months, particularly in the run up to the general election, when purdah meant that the usual discussions with politicians were on hold. Since the election, we have resumed lobbying on pathology-related topics, and are about to begin a programme of meetings with MPs and Ministers to ensure that policy makers are well informed and understand the vital role of pathology in health care, particularly in relation to innovation and quality.

Some difficult decisions have had to be made recently about how far and how rapidly to progress with important projects including the National Laboratory Medicine Catalogue and the implementation of the Pathology Quality Assurance Review recommendations. Further work on both of these projects will require external funding so there is currently a pause while options are discussed. As President it isn't a very comfortable position to be in to have to limit the professional input into national initiatives, but when that input has a cost attached, I also have to think about how members' subscriptions are spent and what can reasonably be achieved within our limited budget.

Medical Examiners

The Secretary of State for Health, Jeremy Hunt, made a commitment to introduce Medical Examiners in the House of Commons before the general election. I have since written and met him to discuss this and other pressing topics and am optimistic that Medical Examiners will be introduced eventually, although there is obviously still some work to be done. In particular there is a spending review taking place, which will involve the government looking at all expenditure for the next few years. We hope that the funding of the medical examiner system will be confirmed by the review and I will continue to raise the issue at every opportunity and discuss with those in a position to influence policy priorities.

A meeting room at The Goodman Building

Medical Innovation Bill

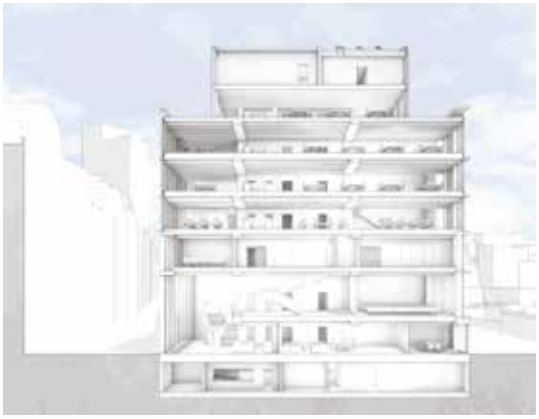
In the last issue I reported that the Medical Innovation Bill had failed to be passed by the last parliament and so would not progress. I thought that was the last time I would write about it. However, Lord Saatchi's team is attempting to have the Bill passed, by hurrying it through parliament without time for proper debate. We strongly oppose this and have released statements including co-signing a letter with several other medical royal college presidents.

The Goodman Building

I attended a talk recently in which the College was described as having 'gone into hiding', presumably referring to our move in February from Carlton House Terrace to Prescot Street. Our current premises may be three miles east of our former home but we're in bright, spacious offices close to excellent transport links. The building is on a main road with prominent signs, definitely not 'in hiding'. Members are welcome at any time during the working week; there are desks, comfy chairs, free wifi and refreshments available. College business has continued as usual, with the move taking place over a weekend to minimise disruption. The majority of members will have noticed no difference at all, and those who have visited the temporary premises have found it a pleasant place to work. We may no longer have such a prestigious location but we also are no longer constrained by trying to squeeze too many staff into a listed building that we outgrew several years ago.

Progress is being made with the College's new premises. The Goodman Building on Alie Street is just a stone's throw from our temporary home at 21 Prescot Street. The new building was named after Roland Goodman, a wealthy sixteenth century London fishmonger and farmer, who owned land in the area. His name lives on in several streets and developments in the area. The architects, Bennett's Associates, have developed detailed plans for the new building, including a 200-seat lecture theatre, meeting rooms and offices. There will be a

Architect's drawing of Alie Street



well-equipped members' area. The architects have responded to feedback from the Trustee Board and are making the final adjustments before submitting the plans to Tower Hamlets planning department. To minimise venue hire costs, some of the rooms in the current Alie Street building are being used for some internal meetings over the summer. If you would like to follow progress on the Goodman Building there are regular updates on the College website.

Meeting members

I have recently enjoyed trips to meet members in Belfast, Guildford and Dublin and have a programme of regional visits planned for the next few months. The annual meeting in Belfast of the Northern Ireland Regional Council and local members was particularly good and included a meeting with Chief Medical Officer, Dr Michael McBride and current trainees. It has proved surprisingly difficult to organise meetings outside London but we are planning a Council meeting and AGM in Newcastle in 2016. I am keen to talk to as many members as possible and hear their views about their priorities for the College. I have been privileged to be invited to speak at numerous meetings so must have had the opportunity to talk to thousands of members already – although admittedly I do sometimes bump into the same people at different meetings!

UK collaboration

One of the themes of my presidency is collaboration; forging closer working relationships between the College and other pathology organisations and professional groups. I am particularly pleased that representatives of the College, IBMS and ACB are working closely on pan-pathology issues such as the Quality Assurance Review. The recent joint Pathological Society and BDIAP meeting in Dublin was a great success. I hope that these organisations and the College will work more closely together in the future and will be exploring the possibility of joint meetings. The Pathology Alliance, a group that includes all the organisations mentioned above, and more, continues to meet regularly to consider areas of common interest.

Meeting of the Northern Ireland Regional Council

International collaboration

I have just got back from an interesting few days in Dublin, where the International Liaison Committee of Pathology Presidents (ILPP) met this year. The ILPP is a group made up of the Presidents of the major pathology organisations in the UK, Ireland, USA, Canada, Australia, Hong Kong, Singapore and South Africa. This year the meeting was hosted by Dr Peter Kelly, Dean of the Faculty of Pathology of the Royal College of Physicians of Ireland. Topics discussed at the two-day meeting included Choosing Wisely, training in molecular pathology, quality assurance, subspecialisation, public engagement, social media, informatics and supporting low income countries. The meeting is a valuable opportunity to share ideas, learn from other countries' experiences and develop a network of international allies. Many of the colleges shared documents and contacts. The Royal College of Pathologists and Association of Clinical Pathologists will be hosting the 2018 meeting in London.

International collaboration is also high on the agenda because of plans underway for the second International Pathology Day, which this year will be held on November 18th. Discussions have already taken place with the ILPP and European Society of Pathology to explore ways in which other countries can raise the profile of the specialty.

Choosing Wisely

I am pleased that the College is one of four leading this international initiative in the UK, working through the Academy of Medical Royal Colleges. Choosing Wisely is a campaign to encourage doctors and patients to talk to each other about whether investigations and treatments are appropriate for the individual patient. This ties in with what we know from the 2013 Diagnostic Atlas of Variation, which showed a huge difference in the number of tests requested by different CCGs. Although there's likely to be significant overtesting in some areas, there's also likely to be some undertesting. Choosing Wisely is not primarily about saving money, but about making sure that individual patients get the tests and treatment that best suits them. Each

The ILPP meeting in Dublin

Specialty Advisory Committee has been asked to nominate investigations of questionable value so that a compendium can be compiled to encourage doctors and patients to think twice before requesting a particular test.

Lay Governance Group

Patients have been involved in the decision-making processes of the College for many years but the way in which they do this is changing. A Lay Governance Group is being established to ensure that patients' views remain central to the work of the College. A lay member will also be appointed to the Trustee Board.

I am grateful to the former lay representatives and other patient groups who volunteered their time and expertise to help us re-establish this vital committee. We are now drawing up job descriptions and hope to advertise the roles in the near future. I look forward to letting you know how things progress.

Governance changes

Several changes have been introduced to the way the College functions over the last few months. In particular, the appointment of fellows to College positions has been made more transparent and open. All eligible fellows are now invited to apply for positions such as Committee chairmen and there is a formal process for all appointments. More transparency has also been introduced to the College's Clinical Excellence Awards process and new guidance is being produced for future years so that the regional and national process is clear

Lord Lindsay presenting the certificate for the first lab to be awarded ISO15189 accreditation

Chelsea Flower Show

It was a pleasure to spend a day at the Chelsea Flower Show in May, promoting the College's stand, Plants, Pathologists and Disease (see page 157). The stand won a bronze medal, which is testament to the hard work of College fellow virologist Tim Wreghitt and his team. We are also grateful to Roche for their sponsorship and the Eve Appeal, a gynaecological cancer charity with whom we worked to raise the profile of the stand. Plans are already underway to develop ideas for next year's exhibit – any budding gardeners or set designers are encouraged to get involved.

Accreditation

I hope you won't mind if I take the opportunity to congratulate the pathologists and scientists from Peterborough and Stamford Hospitals NHS Foundation Trust, which has become the first in the UK to receive ISO 15189 accreditation for all its pathology laboratories. Having been involved in the preparation for the assessment I know just how much hard work goes into maintaining the level of evidence required for accreditation. I was very proud to join the team from Peterborough at the House of Lords when they received their certifcate from Lord Lindsay, Chairman of UKAS.

The future of the autopsy

The College is aware of severe pressures in the coronial autopsy service in England and Wales and receives regular communications from its Fellows and other sources to support this view.

At the end of June we sent out a survey to histopathology consultants and senior trainees to try to find out the extent of the problem and to help us develop a strategy to support autopsy services.

We have had a huge response to the questionnaire, with over 500 responses to date. You can read about the survey findings in David Bailey's article on page 181.

Peter Hutton's long-awaited review of forensic pathology in England and Wales has just been published and makes for interesting reading. As well as looking at forensic services, Professor Hutton makes recommendations about the coronial pathology service, which will have implications for the way in which many histopathologists work. The review's recommendations and the results of the members' survey will be considered together and progress reported in the next issue. Thank you to everyone who completed the survey, members' views are vital if I am to represent you.

Finally I'd like to wish you a sunny and relaxing summer. I hope you manage to take a break and spend some time with your families.

Dr Suzy Lishman
President

Teaching telephone communication skills in microbiology

Dr Gavin Forbes

Dr Harriet Hughes

Graduates must be able to communicate clearly, sensitively and effectively with patients and their relatives, and colleagues from a variety of health and social care professions. Clear communication will help them carry out their various roles, including clinician, team member, team leader and teacher (*Tomorrow's Doctors*, GMC.)[1]

The unquestionable importance of effective communication skills in the day-to-day life of a doctor is reflected by the GMC in *Good Medical Practice* guidance[2] and in *Tomorrow's Doctors*.[1] The emphasis on developing such skills in face-to-face communication has increased significantly over recent years, both in undergraduate and postgraduate training.[3,4] However, such training is often weighted heavily towards doctor-patient interactions and less often covers inter-professional effectiveness in our experience. In addition, although clinical interactions in microbiology are increasingly taking place in person, either with colleagues or with patients, work pressures are such that many clinical exchanges necessarily take place by telephone.

Reflecting on feedback from a suboptimal telephone exchange, we actively explored the options of delivering training in 'Telephone communication skills', tailored to the needs of microbiology trainees.

We approached in-house university departments responsible for delivering postgraduate face-to-face communication skills courses, as well as companies delivering courses on doctor-patient telephone communication skills in general practice. The question of developing a bespoke course for our microbiology trainees was met with interest and enthusiasm from several teams, though none had ever run such a course for any specialty in secondary care. After discussing and agreeing the key skills required, and the aims and objectives of the planned training, we set up a trial one day course for Microbiology, virology and joint microbiology/infectious diseases trainees from both Cardiff and Bristol.

Microbiology trainee, Gavin Forbes, describes in detail below how these aims and objectives were met using different techniques throughout the day.

Anonymous feedback to both the course provider and to ourselves was outstanding across all areas. As a result, we plan to run this training day on a regular basis as part of our rolling specialty training programme. We propose that the need for development and honing of telephone communication skills between clinical colleagues is of paramount importance – not only to microbiologists, but to any person who relies on effective telephone communication.

Key skills for doctor-to-doctor effectiveness

- Gathering information accurately
- Sharing an opinion
- Answering questions
- Giving information
- Checking the information is understood and received correctly

Trainee perspective

Without body language and clear intonation, clarity and conciseness become key factors in effective communication. With this in mind, the 'Telephone Communication Skills' trainer set out to improve our communication skills by creating a "very relaxed environment [with] perfect balance of presentation/tuition and practical role play."

Following a brief round of icebreaking introductions, we started by thinking about the difficulties faced in telephone conversations compared with face-to-face discussions.

Working in pairs allowed us to explore the difficulties in obtaining and providing clear information without most of the non-verbal inputs we frequently associate with effective interpersonal interactions. With one partner taking the role of the microbiologist and the other the role of a junior doctor, and with both participants facing away from each other to eliminate non-verbal interactions, we explored how it can be difficult to have a clinical discussion that is satisfactory for both participants.

The lack of face-to-face interaction made it easier to become frustrated, as some normal social barriers were absent. This resulted in both

participants seemingly having a lower threshold for irritation and showed very effectively how telephone conversations can easily become fraught, in a way that would be much less likely to occur if the participants were conversing in person. Frustration seemed to be a major part of unsatisfactory discussions for all participants, and so we focused on ways to minimise factors that might lead to frayed tempers.

Many people, and especially busy people, may fall into bad habits for the sake of expediency and perceived efficiency; we looked to identify and change these bad habits. During the initial round of role-playing, it was noted by the facilitator that I introduced myself as a non-specific 'microbiology reg', and that perhaps by using my name and starting the conversation with a more upbeat tone of voice would start the discussion off on a more positive note, which could carry over into the rest of the conversation. Trying this out in an impromptu role-play scenario, it seemed easy to adopt a more approachable tone of voice when I introduced myself with my name, and the feeling from the group was that this was a simple intervention to help start discussions off in a positive way. The importance of 'a virtual handshake' was recognised by all participants, and most of us felt that this was a simple intervention that would improve our interactions.

'Para-verbal' communication was also shown to be an important factor in a successful outcome for both parties. Body language, facial expression and other non-verbal aspects of communication are important face to face, but are lost over the telephone. A greater emphasis, therefore, is placed on not only the content, but also the tone of what is said. Through structured role play, we made efforts to remain empathetic, concentrating on moderating the tone of voice. It was felt that setting out with a positive outlook on the discussion made it easier to remain positive and approachable, and served to lessen any negativity that might evolve.

The challenges faced during a telephone conversation were explored further to consider the expectations of both parties, and how to achieve a mutually satisfactory outcome. The frequently heard opening line, "Could I ask for a quick bit of advice?", betrays the caller's expectation of a simple answer to what they likely believe is a simple question. However, these questions are often deeper than the caller realises, and we must ask questions to gather more information to be able to give sound and safe advice. Sometimes the caller's irritation at our questions becomes rapidly apparent: this is a commonly occurring example of expectations not being met, and the consequences of this can be damaging for patient care.

Using this challenge as a stepping stone, we reviewed a number of separate aspects aimed towards managing expectations and forming a "technique for structuring [the] consultation". The first was to follow the caller's opening statement with some signposting, clearly setting out our expectations and informing them that we would need to ask some follow-up questions.

Focusing then on the end of the discussion, we considered that many of the more frustrating calls that we as microbiology trainees have experienced stem from a miscommunication of an agreed plan – either because we have failed to explain ourselves properly, or because the plan has not been documented by the clinical team. We were encouraged, therefore, to improve understanding by minimising jargon, to recap on the plan at the end of the conversation, ask the clinician to ensure that the agreed plan was documented, and check understanding using read-back. Experimenting with more complicated role-play scenarios, the introduction of this structure seemed to pay dividends when it came to ensuring that the agreed plan was clearly understood by both parties.

Finally, we put together all the techniques that we had practised, formulating our own optimum strategies for effective communication in one final role play. It proved surprisingly easy to amalgamate all of the learning points, resulting in much more effective interactions for both parties.

Overall, the session had a positive impact on my telephone consultations, and I took away a number of useful tips to facilitate easier communications. The quality of facilitation was excellent, and many participants commented on the inclusive, relaxed and friendly environment. The development of more specialised resources to accompany the course would be a welcome addition to this well-run and very beneficial bespoke course.

Dr Gavin Forbes
ST3 Medical Microbiology and Virology

Dr Harriet Hughes
Consultant Microbiology and Infectious Diseases
University Hospital of Wales, Cardiff

References

1. *Tomorrow's Doctors*, General Medical Council, 2009. www.gmc-uk.org/education/undergraduate/tomorrows_doctors_2009.asp (accessed 22 May 2015).
2. *Good Medical Practice*, General Medical Council, 2013. www.gmc-uk.org/guidance/good_medical_practice.asp (accessed 22 May 2015).
3. Fisher J, Martin R, Tate D. Hands on + hands free: simulated on-call interaction. *Clin Teach* 2014;11:425–428.
4. Marhall SD, Harrison JC, Flanagan B. Telephone referral education, and evidence of retention and transfer after six-months. *BMC Med Educ* 2012;12:38.

Ed Davie

Health secretary stays the same but NHS challenges mount

During the turbulent election campaign, few would have predicted that the NHS would end up being overseen by the same Health Secretary, Prime Minister and Chancellor.

Election analysis

Jeremy Hunt's reappointment provides some reassurance the NHS will not face the kind upheaval that followed the last election in the form of the Health and Social Care Act.

Despite that relative stability, there are very tough financial challenges for the NHS which politicians can improve or make worse.

With scores of major NHS trusts now reporting deficits Health Ministers (see page opposite) will be pushing for July's Budget to provide more money for the current financial year. In the medium term he will be negotiating for a sustainable funding settlement in the autumn spending review.

A longer-term gap of £30 billion was identified in the Five Year Forward View (5YFV). The View said that the service could find an incredibly ambitious £22 billion in efficiencies and then invited the political parties to offer the remaining £8 billion.

The Conservatives duly promised a "real terms" minimum increase of £8 billion by 2020. Even assuming the NHS can find £4.5 billion of savings every year for five years new demands are being placed on the service.

Welcome though the Tory funding promise is, it does not cover the additional costs of their (see box) other health manifesto commitments. The cost, for example, of a "seven day a week NHS" and "a guarantee that everyone over 75 will get a same-day appointment if they need one" will be huge.

At the same time shrinking social care services, which are managed by councils not protected from funding cuts, mean more pressure on the NHS.

Mindful of all these pressures The College is making sure the interests of our members and their patients are being represented at the highest levels.

On his re-appointment as health secretary, Mr Hunt said that Robert Francis's report into the failings at the Mid-Staffordshire NHS Trust had "started a journey" to improve safety, care and quality. One of the, as yet unfulfilled, requirements of the Francis report was the establishment of a national system of medical examiners. Before the election, this College secured a parliamentary assurance from Mr Hunt that the system would be put in place as soon as possible. His continuation in the role allows our President, Dr Suzy Lishman, to press him on a firm timetable for this important reform overseen by the College and successfully piloted by College members.

Dr Lishman has already written to and spoken to Mr Hunt raising the issues of medical examiners, completing the National Laboratory Medicine Catalogue (NLMC) and ensuring that the right numbers of pathologists are trained, recruited and retained.

The College has also invited Mr Hunt to speak at the parliamentary launch of National Pathology Week 2015 on November 2, which will help convince ministers, MPs and partners of the need for this support.

With medical examiners, the NLMC and the right workforce pathology can play its part in delivering the incredibly ambitious programme set out in 5YFV.

That contribution will be vital as the NHS faces the challenge of dealing with ever growing demand caused by demographics, political promises and cuts elsewhere in the system.

Ed Davie
Public Affairs Officer
The Royal College of Pathologists

Relevant Conservative Party manifesto pledges

- 'Seven-day NHS' by 2020
- Access to GPs 8 am to 8 pm for everyone by 2020
- Quality of hospital care to be same every day of week
- Same day appointments for all over-75s
- National evidence-based diabetes prevention programme
- Speed up access to new medicines by implementing the findings of innovative medicines and medical technology review
- Increase use of cost-effective new medicines and technologies and encourage large-scale trials of innovative technologies and health services
- Deliver the new strategy recommended by NHS England cancer taskforce through enhanced prevention, earlier detection and diagnosis, better treatment and care
- Continue to support research to improve the diagnosis and treatment of rare diseases and cancers, including through decoding 100,000 whole genomes

Health and Science Ministers

Secretary of State for Health: Jeremy Hunt MP – no change
Jeremy Hunt was first appointed Health Secretary in September 2012 following the controversial NHS changes in the Health and Social Care Act 2012 and has been seen as 'a safe pair of hands'.

The health secretarys ays he would like to head the Department of Health until 2017 because he would be "very happy if this is my life's work".

Minister of State at the Department of Health: Alistair Burt MP – new minister
Alistair Burt was a junior minister at the Foreign and Commonwealth Office 2010–2013, having been a social security minister at the Department of Social Security in John Major's government 1995–1997. He takes over the care and support portfolio from well regarded Liberal Democrat Norman Lamb.

Minister for NHS Productivity: Lord David Prior – new minister
David Prior served as an MP from 1997 to 2001 and went on to be Deputy Chairman and Chief Executive of the Conservative Party. In order to take up this ministerial post, Lord Prior has stepped down as Chair of the Care Quality Commission. He has also been an adviser to the health authority of Abu Dhabi and Chair of the Norfolk and Norwich University Hospital 2002–2013.

Parliamentary Under Secretary of State for Care Quality: Ben Gummer MP – new minister
Ben Gummer was elected the Conservative MP for Ipswich in May 2010. He has campaigned to retain and improve health services in the east of England and has written a book on the Black Death called *The Scourging Angel*. His ministerial portfolio includes pathology and death certification.

Parliamentary Under Secretary of State for Life Sciences: George Freeman MP – no change
Before being elected in 2010, George Freeman had a 15-year career in life sciences working with hospitals, clinical researchers, patient groups, biomedical research companies. He was first appointed in this joint role with the Department for Business, Innovation and Skills in July 2014 and continues in that role.

Parliamentary Under Secretary of State for Public Health: Jane Ellison – no change
MP for Battersea since 2010, Jane Ellison was appointed Public Health Minister in October 2013. She surprised many by forcing through legislation on plain packets of cigarettes against the wishes of many Conservative colleagues, including party strategist Lynton Crosby.

Minister of State (Minister for Universities and Science) at the Department of Business, Innovation and Skills: Jo Johnson MP – new minister
Until the general election Jo Johnson was head of the Number 10 Policy Unit and Chair of the Prime Minister's Policy Board. In July 2014, the London Mayor's brother was also appointed Minister of State for Cabinet Office.

Diane Gaston

Redevelopment of the College website

The redevelopment of the College website is entering the last stage of the first phase. In redeveloping the site, we want to improve how we engage with Fellows, members of the public and politicians.

Our aim is to make sure that all the current services you need, such as booking events or exams, logging CPD or updating your workforce information, work more smoothly. We also want to make the navigation clearer and improve the search facility, so that it's easier to find what you're looking for when you want it. Longer term, the site will offer more tailored services and interactivity with discussion forums and online chat. Another key aspect of the redevelopment is to make sure that the new site is easy to use from a mobile phone or tablet.

The current phase started last summer, with the College producing a detailed invitation to tender, and expert advice provided by the College's IT Director, Dr Laszlo Igali. We reviewed a number of company responses and went through a detailed interview process. Our selected supplier, Pixl8, has worked on a number of redevelopment projects for third-sector and membership organisations, including The College of Optometrists, The Royal Society for Public Health and Kew Botanical Gardens.

We then began a detailed analysis of all the content on the current site and organised a series of meetings with each staff team at the College; this was to make sure we recorded all of the existing information on the site and reviewed how it was used. The real work kicked off after our member survey and workshops. These were invaluable to test the assumptions that had been made. Members were asked to give their views on some of the initial designs that had been produced, consider the site map that showed how all the information on the proposed site would be organised, and try the 'member journey' – how you use the site for booking events, making payments or using LEPT. This feedback was invaluable in developing the navigation and making sure the new site will be modern and professional.

Over the winter, much of the focus was on laying the foundations for the new website. This involved putting together a plan to edit and then migrate the content to the new site, tweaking the page designs and rolling out a training programme for College staff so they understand and can use the new content management system (CMS).

All of this preparation is now being evaluated by members at a second series of workshops. We'll incorporate their comments before we start user acceptance testing – the crucial phase where staff and a group of Fellows test every aspect of the site, we make sure all feedback is acted on and any final glitches are fixed. Then it's 'go live' at the end of the summer.

But that won't be the end of the story. Phase Two will see further development, with automation of many of the functions that relate to our public engagement work, such as recruiting volunteers, booking events or registration for science communications training courses. We also hope to improve interactivity for Fellows and be able to make better use of video content on the site. All of this work will be checked with Fellows and comments taken on board. It's your site and we want to know what you think.

Diane Gaston
Head of Communications

Screenshot of a possible design for the homepage of the new College website

Screenshot of a draft of the profession page of the new website

Flying pigs and other pathology queries

Samantha Jayaram

Dr Stuart J Hamilton

As the first point of contact for the many media enquiries the College receives, Samantha's role is to provide College spokespeople for interview and comment, as well as to provide statements, background information and facts and figures about the various pathology specialties to help ensure accurate reporting in the press. However, this is not always as straightforward as it seems...

We all have our own particular brand of 'heart-sink moments' at work and mine are usually triggered by well-meaning, youthful, enthusiastic researchers for TV programme production companies, looking to speak to 'a pathologist'.

Don't get me wrong, I enjoy speaking to the press and the variety of enquiries I receive is what makes my job interesting, but with the availability of useful online resources such as the College's *I love pathology* website, there's no excuse for members of the media not to undertake a little bit of background research about what pathology encompasses before they call.

Back to our eager TV researcher.

Me: "Sure. What type of pathologist would you like to speak to?"

Researcher: Short silence. "The ones that solve crimes and do autopsies."

Me: [Inward sigh.]

Undeterred, I carry on with what I consider to be an erudite explanation of the diagnostic prowess of our many members to give the researcher a bit of context to the world of pathology.

Me: "Most of our members don't undertake autopsies. Many of our members are involved in diagnoses, such as haematologists, virologists, medical microbiologists and clinical biochemists. Did you know there are 19 different pathology specialties? People often don't realise that over 70% of diagnoses in the NHS involve pathology. If you've ever had a blood test, biopsy or cervical smear, a pathologist will have been involved."

Now the TV researcher – no longer feeling quite as young and enthusiastic as they did when they first picked up the phone – will also plough on regardless.

Researcher: "We are working on a TV series involving mummified corpses that come back to life. They then live undetected amongst local people before turning on them and devouring them in a series of brutal and ritualistic sacrifices. The series is going to be set on the Isle of Wight and I wanted to speak to a forensic pathologist to check some facts."

This type of enquiry (though I am exaggerating only slightly for the purposes of this article) should hardly come as a surprise. The forensic crime genre is an international multi-billion pound industry spanning, film, TV, novels, magazines as well as the theatre and even museum exhibitions. Switch on your TV tonight and there will be at least one fictional forensic pathologist undertaking an autopsy or attending a crime scene.

There is nothing wrong with portraying fictional pathologists and the vital work they do, of course, but it is hardly representative of pathology. Forensic pathologists make up less than 1% of the College membership, for example.

What is of bigger concern is that the disproportionate amount of airtime devoted to death and crime distorts the public's understanding of pathology and its importance in healthcare. Worryingly, this perception is not just limited to the public; it is also prevalent amongst politicians and policy makers and even amongst other health professionals.

This is where the College can play a role. As well as an extensive programme of public engagement activity such as the National Pathology Week, we also work with the media to accurately reflect the diversity and importance of all 19 pathology specialties.

A flying pig during filming of an episode of *The Theory of Everything*

Become a spokesperson for the College

TV and radio programmes such as *Horizon* and *Inside Health* often explore non-forensic pathology-related topics. I also get requests from the media for spokespeople to cover a range of health-related issues.

Recent examples include the veracity and value of home-testing health kits and the over-ordering of blood tests in NHS Trusts. These are opportunities to raise the media profile of pathology, not only to the benefit of the profession but to promote the importance of pathology and to improve understanding.

To help with this, I am keen to increase the list of College spokespeople who can talk to the media about their specialty. I contact spokespeople to speak to the media on our behalf when a suitable story arises. I aim to have at least two spokespeople to cover topics where we are likely to receive media enquiries. If you are interested in finding out more about becoming a spokesperson for the College, please contact me.

Returning to my original scenario, thankfully I have an enthusiastic and willing forensic pathologist spokesperson who is happy to help: Dr Stuart Hamilton. I would like to take this opportunity to thank him for helping out with the numerous – often surreal – forensic pathology enquires I receive. Here are a few examples from Stuart...

Flying pigs

What could be better than a forensic pathologist explaining why falling into water from a great height kills you? Get someone to dissect a pig that's been dropped into water from a great height! That was the fun we had filming an episode of *The Theory of Everything*, a lighthearted look at science on the BBC. We had a great day trying to ensure that our victim landed in the pool and providing a scientific explanation of the injuries from falling from a great height into water.

Forensic fiction

Being invited to share a stage with Ian Rankin and Kathy Reichs at the Cheltenham Literary Festival was a daunting prospect but, with the support of the College media team and the charming personalities of the authors (one of whom is, of course, a 'real' forensic anthropologist), we were able to discuss the differences between forensics in drama and real-life case work and why they can't be the same. It was a great opportunity to showcase the hard work of the College Fellows, even if we aren't quite as 'expert' as some people would think from episodes of *CSI*.

Dead dodgy

Of course, interacting with the public and the media sometimes involves backing away slowly while smiling... You'd be surprised how many 'authors' want to know how to kill someone in an undetectable manner. The obvious answer is that they don't want to know the answer, because if it's undetectable their hero/heroine/pet cat won't be able to solve the crime... (By the way, yes I do know how to do it. And no, I won't tell you). And just maybe that person isn't an author but has an aunt/colleague/neighbour he doesn't like? My general rule is: if it seems uncomfortable, don't do it. The team at the College are very good at identifying the genuine from the frankly dodgy!

The hunt for a dead king

It's not every day you find a dead king in a car park, but if you should happen to do so it's fair to expect some media attention. In 2012, a skeleton was discovered in Leicester which turned out to be Richard III. I was subsequently called in to identify the skeletal injuries. I still find it quite amazing to think that I held a king's skull in a Channel 4 documentary, but I think the most important things I learned from that piece were to check what they want you to wear (heavy metal T-shirts are good for 'young and funky' shows like *The Secret of Everything*, but less so for talking about a dead monarch), and that you may accidentally come up with a comment that gets quoted back at you (with reference to the large hole in the back of his skull: "even with modern neurosurgery, you're not walking away from that one").

Samantha Jayaram
Press and Communications Manager
samantha.jayaram@rcpath.org
@RCPath

Dr Stuart J Hamilton
Home Office Registered Forensic Pathologist

Ed Davie

The President's voice

Unlike government or healthcare commissioners and providers, a medical royal college does not directly take decisions that directly affect members and their patients.

Instead, a college relies on the collective weight of its membership, its reputation and the ability of its leaders to persuade those with the levers.

Dr Suzy Lishman is the first President to be elected by the entire College Fellowship and she has a powerful mandate to communicate with and between members, government and partner organisations.

The key to effective influence is being clear about what you are trying to achieve in the short, medium and long term, before deciding how best to convey the message.

Stopping the Medical Innovation Bill

In the short term, Suzy shared the concerns of her predecessor, and many others, that Lord Maurice Saatchi's Private Member's Medical Innovation Bill would potentially harm patients and damage UK medicine. The College's Communications team helped to prepare briefings, write letters to parliamentarians and arrange meetings between Suzy and parliamentary frontbenchers able to influence the legislation. On the back of these interventions, the Bill was amended to mandate the recording of test results, whilst behind-the-scenes pressure stopped the Bill altogether in the last parliament.

Reforming death certification

As a medium-term goal, the College has focused on getting a national system of medical examiners implemented.

It has been clear since at least Dame Janet Smith's inquiry into Harold Shipman's murders that such a system was needed and it was legislated for in 2009. Since then, the Francis report into Mid-Staffs and the recent Morecambe Bay inquiry have both expressed concern that such a system is still not in place. Armed with evidence from pilot sites where College Fellows have shown the clear benefit of medical examiners, Suzy has sought to deliver this important reform.

Early this year, media interest in the fifteenth anniversary of Shipman's conviction provided an opportunity for the College to make the case for medical examiners, who have been shown to provide comfort to relatives, improve care and save the NHS money in reduced litigation. Press statements were issued and Suzy appeared on national and regional BBC TV and radio news, and even on Russian television, bringing the issue to public and ministerial attention.

We followed this up with letters to senior ministers and their shadows, and briefed parliamentarians to ask questions in subsequent debates on the anniversary of the Francis report.

In response to one of these questions, Health Secretary Jeremy Hunt committed the government to finally implementing the medical examiner system and since his reappointment Suzy has written to him for clarification on timing.

Workforce issues

Longer term, it is clear that with the demand for cancer services alone is estimated to rise by 30% and in the coming years it is critical that the right pathology workforce is trained, recruited and retained. Again Suzy has written to the Health Secretary on this issue and the College is working to ensure that pathology has the right professionals to meet future challenges.

Demographic, financial and technological changes mean that those challenges facing pathology are formidable. With a strong and well-supported leadership, the College is ensuring the messages of what pathology needs to meet them are being heard by those in power.

Ed Davie
Public Affairs Officer

Samantha Jayaram

'Plants, Pathologists and Disease' at the Chelsea Flower Show 2015

Dr Jo Sheldon, Dr Suzy Lishman, Lesley Joseph and Dr Tim Wreghitt in front of the College stand

Lesley Joseph, best known for playing Dorien Green in the popular sitcom *Birds of a Feather*, took part in a photocall with President Suzy Lishman in front of a yew (Taxus) tree on the College's stand, 'Plants, Pathologists and Disease' which was awarded a bronze medal at the Chelsea Flower Show in May.

Lesley was representing The Eve Appeal, which campaigns to highlight the need for better detection and improved treatment of gynaecological cancers including ovarian cancer. The yew tree was chosen for the photocall because Paclitaxel, used to treat a number of types of cancer including ovarian cancer, is isolated from the bark of the Pacific yew.

The College's stand was part of the 'Discovery' area of the show, and was organised by College Fellow Dr Tim Wreghitt and his team.

Samantha Jayaram
Press and Communications Manager

Lucie Vass

Introducing National Pathology Week 2015 – 'Pathology: the key to your health'

Preparations for National Pathology Week are well under way and over 50 events have already been registered. The theme for this year is 'Pathology: the key to your health', so we encourage you to think about highlighting the increasing role molecular pathology plays in healthcare when organising your events.

Organising and resourcing events

A poster for the Week is now available to download or order on www.ilovepathology.org. We hope you will use this to advertise the event within your workplaces.

If you are stuck for ideas, www.ilovepathology.org has lots of ready-made event ideas, resources and a 2015 factsheet that can be distributed at events or used to inspire activities. You can download guidance on how to plan, publicise and evaluate your event and read top tips for delivering it successfully.

Once you have organised your event, don't forget to register it on www.ilovepathology.org and be in with a chance of winning a prize (see page 167). Once you have registered, you can request promotional materials including pens, wristbands, stickers and leaflets.

Facilitating events organised by the College

If you still aren't sure what to do, the College is organising a series of events for NPW and we are always looking for volunteers to help facilitate them. After our NPW launch reception at the House of Commons on Monday 2 November, we have a packed schedule of centrally organised events, please get in touch if you're interested in taking part. The London events are:

- 3 November: 'Pathology 19 ways' at Barts Pathology Museum – for schools
- 4 November: 'Where's my biopsy result?' at Hunterian Museum, for medical students
- 6 November: 'Your body, your consent' at Hunterian Museum, for A-level students.

Facilitating a school event near you

We are also seeing an increasing number of requests from schools for visits from pathologists, in particular during NPW, so if you can offer a few hours to facilitate a schools workshop near you, then please do let us know.

Science communication training

Science communication training continues to run three times a year so if you have enjoyed taking part in public engagement and would like to learn more, do consider signing up for the next course (details on page 167).

We're here to help

If there is anything we can help you with, please do not hesitate to get in touch. We hope you will join us in making this year's NPW the best yet!

Lucie Vass
Public Engagement Manager

International Pathology Day

At the G7 summit, David Cameron called for 'disease detectives' to respond to future pandemics, such as Ebola. College Fellows are already at the forefront of this work, volunteering to work in affected areas and sharing their expertise. Our wider international work focuses on strengthening laboratory medicine in developing countries.

Our International Pathology Day (IPD) conference will showcase the importance of pathology and the crucial role pathologists play in global health. The conference, on Wednesday 18th November in central London, already has some eminent speakers.

Lord Hunt of King's Heath, a former UK government health minister is President of the Royal Society of Public Health. He takes a particular interest in preventative medicine across the world. Lord Patrick Carter of Coles is a healthcare entrepreneur who chaired the Independent Review of NHS Pathology Services in England which drew on experiences of pathology services across the world.

The conference is free to attend and places will be awarded on a first come, first served basis. Please email amaka.nwagbara.rcpath.org to book your place. We hope you will join us to help celebrate International Pathology Day.

Lucie Vass
Public Engagement Manager

Amaka Nwagbara

Furness Prize for Science Communication 2014

As well as our National Pathology Week competitions in 2014, we also invited nominations for the Furness Prize for Science Communication to find a pathology trainee who had undertaken high-quality science communication activities to promote the role of pathology.

We received an excellent standard of entries, which made it difficult for our judging panel to choose a winner. However, they came to a decision and we are pleased to announce that the 2014 winner of the Furness Prize was Dr Jacqueline McDermott, a NIHR Clinical Lecturer at Barts Cancer Institute and ST3 Histopathology at Barts Health NHS Trust.

Jackie has been involved in science communication for over two years, as a STEMnet ambassador and through her role as the director of a not-for-profit organisation, Fruit Fly Collective. She has inspired school children to consider science as a career option at outreach workshops for the Centre of the Cell, London. Her other public engagement activities include creating 'cancer cloud kits' for children and their families to understand cancer diagnosis and delivering various interactive activities to primary school students at 'Big Bang Fairs'.

We were keen to find out more about Jackie's public engagement activities so we invited her to the College for a short interview, where she was also presented with her prize by the President. The full interview is on our website at www.rcpath.org/the-college/awards-and-prizes/furness-prize.

Runner-up

The runner-up was Dr Jane Graham, an ST7 in Haematology. Dr Graham received a cheque for £100 and a certificate for her innovation work promoting the importance of haematology.

Amaka Nwagbara
Communications Team Administrator

Dr Jacqueline McDermott

The Furness Prize winning project 2014

I have been involved in many scientific public events over the years. As a PhD student, I took an immunology show into schools in my local area. Roping in my younger sister, we acted out a play I had written about Edward Jenner and the development of the smallpox vaccine. We made life-sized cardboard cows and danced with them at the end of the play, to a rousing rendition of 'You Did It' from *My Fair Lady*. It may have been rubbish, but the play definitely caught the attention of the kids.

Since then, efforts in trying to encourage young people to choose careers in science have grown enormously and one particular initiative with which I am proud to be involved is The Centre of The Cell in Whitechapel, East London. The director, Professor Fran Balkwill from Barts Cancer Institute, created the centre within QMUL's Blizard Centre because she wanted to show young people that there is world-class scientific research taking place in their own neighbourhood. This is an impoverished area and her hope is that The Centre of The Cell will help local students to aspire to a career in science. This is something that I also feel very strongly about and I have led many 'Podshows' at the centre. It is a fantastic and inspiring place of learning for young people.

I am also a director of my sister's company, Fruit Fly Collective, a not-for-profit organisation designed to bring science to the public. Our current focus is on understanding cancer. Our dad died when we were young and my younger sister, who was 11 at the time, particularly suffered. We wanted to create something that would help parents/carers with cancer to communicate more easily with their children. The Cancer Cloud Kit

The Cancer Cloud Kit

is designed by artists and contains materials to help facilitate discussion about cancer and to explore difficult emotions. There is visual and written information about what cancer is, how it is diagnosed, who will look after the patient and what treatment pathways are available. The kits have been successfully piloted by the Macmillan Centre at UCLH, Maggie's Centres and the Place2be, a school-counselling charity. We have received excellent feedback from oncology nurses, psychologists and patients.

Our next project is for schools, to provide a wider understanding of cancer using a variety of visual and innovative tools. We are applying to the Wellcome Trust for a grant to help fund this.

Dr Jackie McDermott
NIHR Academic Clinical Lecturer
Centre for Cancer and Inflammation
Barts Cancer Institute, London
www.centreofthecell.org
www.fruitflycollective.com

The Furness Prize for Science Communication 2015

We invite your nominations for The Furness Prize for Science Communication 2015. This award recognises a pathology trainee who has contributed significantly to the field of science communication over a sustained period of time, including some activity in 2015.

Generously funded by Professor Peter Furness, President of The Royal College of Pathologists from 2008 to 2011, the prize was created to:

- cultivate awareness amongst pathology trainees about the importance of public engagement
- reward and recognise trainees who have undertaken sustained high-quality science communication activities.

Candidates may nominate themselves or be nominated by a colleague who is familiar with their work (the candidate must give their explicit consent for the nomination). This person may have organised outreach events, developed resources for schools, worked with other organisations such as museums or charities, evaluated their activities and encouraged colleagues to take part in science communication events.

The winner will be awarded £200 for displaying superior excellence in their science communication activities. For more information and to download the nomination form, visit www.rcpath.org/the-college/awards-and-prizes/furness-prize

The deadline for nominations is **Sunday 6 December 2015**.

Dr Philippa C Matthews

Rolling back malaria: a winning essay promotes understanding of research

Efforts to fight malaria in Africa are proving successful in many countries, but a population explosion means that there is still a long way to go. The author, Philippa C Matthews, is a graduate of the College's Science Communication Training course and took part in this competition as part of her efforts to promote pathology.

The following essay was the winning entry in the 2015 'Access to Understanding' science-writing competition organised by the British Library in partnership with eLife and Europe PMC. 'Access to Understanding' promotes understanding of biomedical research. Competition entrants were challenged to summarise selected scientific research articles in plain English, explaining why the research was done, what was done and why it is important. [Matthews. eLife 2015;4:e07364. DOI: 10.7554/eLife.07364]

Plasmodium falciparum is the most deadly of all malaria parasites. Children are particularly vulnerable to the devastating consequences of this infection, and the World Health Organization (WHO) estimates that a child in Africa dies from malaria every minute.[1] In recognition of this crisis, malaria has become a headline priority in global health, with campaigns such as the Roll Back Malaria initiative spearheading a huge international effort to tackle the disease.

Abdisalan Noor and colleagues set out to assess how much progress has been made across Africa in the Roll Back Malaria era. Have the immense resources deployed made a real difference to some of the world's most vulnerable populations? How has the burden of malaria altered in the decade since 2000? And can we identify whether infection risks have changed by country or region? With these questions in mind, Noor and colleagues developed a method to measure the changing patterns of malaria risk in Africa as precisely as possible.[2]

The symptoms of malaria can mimic those of many other infections, and suspected cases of malaria are often treated in the absence of a definite diagnosis and without attending a hospital or clinic. For these reasons, trying to get a clear picture of the scale of the malaria problem in Africa is a major challenge. Noor and colleagues chose to measure malaria by the most accurate method available, which involved looking for studies that had actually identified *P. falciparum* parasites in the blood. Their final analysis draws on data collected from 3.5 million individuals from over 26,000 surveys spanning 49 regions of Africa, with each piece of information linked to its precise geographic origin by satellite technology.

The researchers – who are based at the Kenya Medical Research Institute-Wellcome Trust Research Programme in Nairobi, Oxford University and the WHO Regional Office for Africa in the Republic of Congo – fed this vast mine of data into a carefully constructed computational analysis. Each piece of information was adjusted to account for when and where it was collected, and the data were then standardised to work out the rate of infection in the age group of interest – the highly vulnerable population of children aged 2–10 years. They also factored in a host of complex influences on malaria transmission, such as urbanisation and climate. The final output was a measure of malaria risk for each individual square kilometer of Africa, first in 2000 and again a decade later. Each of these tiny squares was then classified into one of eight different malaria risk categories.

From this analysis, Noor and colleagues report several substantial and encouraging improvements in the patterns of malaria in Africa. Strikingly, they calculated that 217 million people in Africa were living in a lower risk area in 2010 than they did in 2000. They also found an overall reduction in malaria transmission in 40 of the 44 countries that they assessed in detail. Moreover, four territories – South Africa, Eritrea, Ethiopia and Cape Verde – had successfully reduced malaria into the lowest risk category by 2010. By this time, the majority of the transmission in the highest risk category was occurring in just ten countries.

However, the results also provide a sobering insight into the effects of the population explosion in Africa. This has increased the total numbers of people at risk of malaria; worryingly, over 50% of the population still live in regions of substantial risk. Rates of infection have also remained unchanged or have increased in some countries between 2000 and 2010: Malawi and South Sudan are highlighted as areas for increasing concern, and high transmission has continued across many parts of Nigeria and the Democratic Republic of Congo.

Noor and colleagues also report some areas of difficulty. Despite a data collection effort that spanned eight years, they were still unable to find enough information to assess the malaria risk for certain regions of Africa. Moreover, the vastly complex nature of malaria transmission cannot be completely captured or measured by a computer-based method. Overall, however, the results of this analysis provide valuable feedback for organisations trying to improve population health in many parts of Africa.

As well as amassing a vast amount of information about the distribution of malaria, the researchers also thought hard about the impact of the rapidly changing social and geographical landscape of Africa, ranging from urbanisation to changes in rainfall patterns. The detailed maps they have produced also highlight how the risks of an infection can wax and wane, reminding us of the need to constantly re-assess the best way to keep pace with changing patterns of disease. Noor and colleagues conclude with cautious optimism about the progress made since 2000, but provide a timely warning that the challenge of malaria is far from over.

Dr Philippa C Matthews
NIHR Academic Clinical Lecturer
Nuffield Department of Medicine
University of Oxford

References

1. WHO. 2014. Malaria Fact Sheet: Number 94. www.who.int/mediacentre/factsheets/fs094/en/
2. Noor AM, Kinyoki DK, Mundia CW, Kabaria CW, Mutua JW, Alegana VA, Soce´Fall I, Snow RW. The changing risk of *Plasmodium falciparum* malaria infection in Africa: 2000–10: a spatial and temporal analysis of transmission intensity. *Lancet* 2014;383:1739–1747. doi: 10.1016/S0140-6736(13)62566-0.

Lucie Vass

Award-winning Schools Science Conference

We are pleased to report that the Schools Science Conference has been awarded the 'Healthcare Science Ambassador of the Year Award' at the 2015 Healthcare Science Awards in March 2015.

The College has hosted this event for the last six years and been heavily involved in its success, so we were delighted with this award, presented by the Chief Scientific Officer.

Due to the College being in temporary accommodation at present, this year's Schools Science Conference was hosted by the University of Westminster. Despite not hosting the event, the College still plays an active part on the organising committee and this year ran a workshop for the 250 secondary-school students.

Given the overarching theme of 'Science for Survival' it was appropriate to use some of the activities from the 'Blood and Bugs' road show that we delivered last summer. The activities focused on how pathology has been involved in key advances in medicine over the course of the last 100 years, in particular as a result of the need to increase survival rates during warfare. The feedback from the workshop was consistently good and we look forward to remaining involved with the Schools Science Conference for many years to come.

Dr Eric Watts on a College stand at the Schools Science Conference

Lucie Vass
Public Engagement Manager

Science for survival: the role of a histopathologist

On 22 April 2015, pathology trainees Drs Sabina Rait, Dona Kalani and Danah Saif participated in the annual Schools Science Conference held at the University of Westminster. The conference was aimed at school students in Years 9 to 11, to inspire them to study science through interactive stands.

We wanted to showcase and increase awareness about the role of a histopathologist. We designed an interactive quiz using life-like skin models, with descriptions of benign and cancerous lesions. It was surprising how well the children were able to correctly match the descriptions and differentiate between cancerous and non-cancerous features. There was also the opportunity for the children to try on personal protective equipment, which they seemed to enjoy. We were able to engage with a group of bright and inquisitive children, who responded well to the interactive aspects of the stand and were keen to learn more about histopathology.

Drs Sabina Rait, Dona Kalani and Danah Saif engaging with students at the Schools Science Conference

It was a thoroughly enjoyable day and it highlighted to us the need and importance of such events to promote careers in pathology. They are an invaluable source of informing the next generation of future pathologists. We would definitely encourage others to volunteer in similar events.

Dr Danah Saif
ST1 Histopathology, High Wycombe Hospital

Dr Sabina Rait
ST1 Histopathology, High Wycombe Hospital

DrKalani Kuruppu
ST2 Histopathology, Wrexham Park Hospital

Using art to improve public knowledge of MRSA

Dr James Price

Public anxiety towards methicillin-resistant *Staphylococcus aureus* (MRSA) has grown over the past decade. To help address this, Dr James Price has collaborated with Anna Dumitriu to further public understanding through art.

I have been involved in developing a platform for members of the public to question their own knowledge about MRSA, develop a clearer appreciation of how MRSA and humans interact, and obtain an informed understanding about how healthcare services are working towards ways to understand and control this organism.

This work began over five years ago when I met Anna Dumitriu, an artist with a special interest in the relationship between science and art. Through hands-on involvement in microbiological practice, Anna develops an in-depth understanding of the subject matter and reinterprets this through the media of novel and revolutionary artistic methods. Anna and I are members of the Modernising Medical Microbiology (MMM) research group, a consortium established to evaluate the application of novel sequencing technologies to infection prevention and control (www.modmedmicro.nsms.ox.ac.uk).

The display of the 'MRSA quilt' at the Rockefeller Arts Center, New York

Original calico samples used to make the 'MRSA quilt'. Each sample shows the susceptibility of MRSA to various antibiotic agent and naturally occurring substances

Through MMM we have worked to tell the story of MRSA through textile work, focusing on diagnostic challenges and antimicrobial resistance. We created an 'MRSA quilt' as a visual representation of the effects of antibiotics on the organism. This piece has provided a unique discussion point at a number of international public institutions, including the Victoria and Albert Museum in London and the Rockefeller Art Center in New York, generating dialogues about the development and control of antimicrobial resistance.

Collaborating with Anna has allowed me to engage the public on personal research evaluating the use of whole-genome sequencing in understanding MRSA transmission within healthcare settings. This is particularly important when the work involves investigation of sensitive subject matter such as the possible role of healthcare workers in transmission of MRSA in hospitals. Presentation of my findings at 'Mutamorphosis', an international artistic conference aimed at unifying the arts and sciences, provided a unique setting to discuss MRSA and how medical research is working to improve infection control practices using novel technologies.

The displays of microbiologically inspired textiles and attendance at public events, where questions can be openly asked and answered, has provided a platform for the non-scientific community to address current medical challenges relating to MRSA. Demystifying MRSA and addressing anxieties about perceived associations with the cleanliness of hospitals will help to improve public confidence in the health services. In addition, it remains essential to raise public awareness of the role of pathologists and their successful infection control practices and of the benefits derived from their research.

Dr James Price
NIHR Clinical Lecturer in Microbiology

Dr Lance Sandle

Three flavours of engagement

Over the last few months Dr Lance Sandle has had the privilege of participating in three very different events, and explains here how he has learnt something from each of them.

Wilmslow High School, 25 March 2015

Being a parent of one of the science teachers meant that I was always going to be asked to repeat my stint as part of their Science Enrichment programme. The difference on this second visit was that, due to the lack of collaborators, I decided to present information on the four largest specialties of hospital pathology myself, using existing presentational material updated and adapted for my purposes. Everything went swimmingly until I was asked about treatment for sickle-cell anaemia. I managed to pull hydroxycarbamide out of my rusty memory module just before my credibility suffered irreparable damage.

First lesson (with apologies to Benjamin Franklin): fail to prepare, prepare to fail.

Preston Health Mela, 18 April 2015

The word 'mela' is Sanskrit for 'gathering' or 'fair'. Formed in 2001 as the Lancashire Gujarat Health Users' Forum, the National Forum for Health and Wellbeing is a registered charity that specialises in helping local communities to take greater responsibility for protecting and managing their own health. These events are now ethnically diverse and are increasing in both in frequency and geography; there are at least three further such events planned in the north of England, with plans to spread further afield in future.

This year's Preston Health Mela was attended by approximately 1500 visitors. It was held at the University of Central Lancashire and brought together more than 90 health-related stalls, providing a wide range of information on how to improve health and wellbeing. Events such as this offer a great opportunity to look differently at the relationship between healthcare professionals and the population they serve, giving the public the upper hand and encouraging them to access advice and ask questions of those providing the service for them.

Dr Sandle with Wilmslow High School students

Visitors were able to take advantage of free health checks for a variety of conditions including diabetes, cholesterol and body mass index, and hearing and sight examinations also took place. A wide range of therapies from within and outside the NHS were represented, including complementary therapies such as acupuncture and reiki.

I was privileged to be asked to the event as 'Chief Guest'. I opened the event and gave a short presentation on point-of-care testing and the *Atlas of Variation* to a large invited group that included the Mayor and Mayoress of Preston, the Pro Vice-Chancellor of the University and the Chair of Lancashire Teaching Hospitals NHS Foundation Trust, as well as CCG representation – the perfect audience for the subject matter.

My second lesson was in how to reach out to the public using attention to detail in the provision of point-of-care testing, from the comprehensive documentation to the availability of specialist professional advice on site to address any immediate health concerns.

British Toxicology Society, 22 April 2015

Some months ago, whilst walking past the College secretariat, I was asked whether I would be prepared to introduce this year's Cameron Lecturer at the BTS on Solihull. Without thinking of the relevant eponyms and acronyms, I looked at my Google calendar, agreed and got on with my life. The next time I walked past the secretariat, a few weeks later, I was given a College paperweight to present to the Cameron Lecturer. At this point I decided that I should start paying more attention to the job in hand.

Sir Roy Cameron was the first President of the College, an Australian by birth who spent most of his adult life in London. Societies bid for the lecture endowed in his memory. I can't remember what I thought the 'T' in BTS stood for, but on discovering that the president of the BTS is Professor Heather Wallace, I realised it could only be toxicology which had been successful this year.

I attended for the final morning of their meeting. There were about 200 delegates, some from academia, some from NHS England and some from industry. I caught part of the session on the use of oligonucleotides and then said some introductory words to Dr Jayne Wright, before handing over her paperweight and listening to her talk on 'Advances in scientific understanding of toxicological po-

Preston Health Mela (photo courtesy of the University of Central Lancashire)

tential – Towards improved predictive capability'. This was a superb and crystal-clear account of drug development, which made me regret not attending more of the meeting.

Third lesson: look beyond the title. People giving award lectures are always worth listening to, whether or not they are discussing your field.

Lance Sandle
Vice-President for Professionalism

Samantha Jayaram

Media quiz

Over 24 hours each one of use will of us will be exposed to a wide range of media. Often we don't realise just how many images, quotes and press stories we hear or see each day. We've complied a short quiz so you can test yourself.

Spot the real pathologist

Guess the royal medical college logo

Missing words

Guess the missing words in the following newspaper headlines:

1. How a romantic candle lit dinner can give you _____ (*Daily Mail*)
2. _____ as good as drugs for treating HIV, say scientists (*Evening Standard*)
3. Cancer risk in portion of _____ (*Daily Express*)
4. Study shows _____enhances pregnancy chances (*The Winchester Star*)
5. Hospitals resort to hiring _____ (http://im9.eu)
6. Hubby's _____ kills his wife! (*Weekly World News*)\

General election campaign 2015 quotes

Match the recent general election campaign quotes to the party leader.

1. "That really pumps me up."
2. "I am a secret pool player, not a pool shark but I'm better than people think."
3. "I am a leader of political party, not a sect."
4. "As I always say to people, I worked damned hard right up until lunchtime every day!"
5. "I want to shake things up a wee bit."

Don't quote me

1. Who said: "We're sorry for the massive disruption it's caused their lives. There's no one who wants this over more than I do. I would like my life back."
2. Who asked a Scottish driving instructor: "How do you keep the natives off the booze long enough to pass the test?"
3. Who tweeted "Ed Balls"

Feel free to quote me

1. Who said "the delay was incomprehensible"?

Answers on the next page.

Blood, guts, medicine and microbes... enter the hidden world of pathology!

Dr Matthew Clarke

Public engagement with pathology is extremely important to help make the general public and school children aware of the important role that pathologists play within medicine. I, together with a group of trainee clinical scientists and other histopathology registrars based within Empath (East Midlands Pathology Services) aimed to teach school children about what pathology actually is, and promote it as a career.

Our first visit was to Crown Hill Community College, Leicester. We used a fictional patient with 'hepatitis' (a volunteer who used face paints to create jaundiced skin and bruising) to illustrate the importance of immunology, biochemistry, histopathology, microbiology and haematology in the diagnostic process. Year 10 pupils (aged 14–15) worked around a series of stations, performing tests that helped them make a diagnosis. The activities included urine dipstick testing, blood clotting activities, preparing an agar plate, learning about the role of antibodies and microscopic examination of liver biopsies. They then used a results chart to make a diagnosis for the patient. At the end of the session, they were given a 'goody bag' containing pathology careers information leaflets, pens and wristbands, very kindly provided by The Royal College of Pathologists. The event was a great success, and we were fortunate to be featured in the *Leicester Mercury* newspaper.

Dr Matthew Clarke with students at Crown Hill Community College

We plan to visit other schools in the East Midlands over the next few months. Special thanks to James Pethick, April Sellors, Jennie Austin, Adriana Zalewska, Claire Hamilton, Dr Elizabeth Stannard and Dr William Boyle for all their help, and a special thank you to the Pathological Society for their financial grant which allowed the purchase of two microscopes used at this and future events. Also thanks to Dr Angus McGregor and the Empath Quality Committee, and to Vanessa Breward and Judith Payne at STEMNET for their advice and support.

Dr Matthew Clarke
ST2 Speciality Registrar, Histopathology
Leicester Royal Infirmary

Spot the real pathologist

From left to right Silent Witness forensic pathologist, Thomas Chamberlain played by Richard Lintern, real forensic pathologist Dr Stuart Hamilton and Silent Witness forensic pathologist, Nikki Alexander played by Emilia Fox.

Guess the royal medical college logo (clockwise from left)

1. The Royal College of Obstetricians and Gynaecologists
2. The Royal College of Physicians
3. The Royal College of Radiologists
4. The Royal College of Psychiatrists

Missing words

1. Cancer
2. Bananas
3. Chips
4. Frequent sex
5. Doctors
6. Bad breath

General election campaign 2015 quotes

1. David Cameron
2. Ed Miliband
3. Nick Clegg
4. Nigel Farage
5. Nicola Sturgeon

Don't quote me

1. BP Chief Executive, Tony Hayward, in the wake of the Gulf of Mexico oil spill in 2010.
2. Prince Philip, Duke of Edinburgh.
3. On 28 April 2011, the then Shadow Chancellor Ed Balls accidentally tweeted his name. An aide had suggested he searched Twitter for an article mentioning him but he tweeted his name instead. He didn't delete the tweet because he didn't know you could. People still celebrate the anniversary of 'Ed Balls Day' and it has become a meme.

Feel free to quote me

1. Suzy Lishman on the long-awaited introduction of medical examiners. Suzy was widely quoted across the media earlier this year.

National Pathology Week Competitions

We are running a series of competitions as part of National Pathology Week 2015 to celebrate the importance of pathology and showcase your artistic skills, creativity and knowledge of pathology. We are inviting entries from members, students and the public, so please consider taking part.

Medical undergraduate essay prize 2015: 'Molecular pathology: the future of diagnosis'
Medical students are invited to discuss in 1000 words their views on the evolving changes in diagnosis and treatment of diseases as result of molecular advances in pathology. This is a fantastic opportunity to demonstrate your interest in the recent advances in pathology and development in genomics. The prize is £200.

'My favourite pathologist' poster competition
We invite school students aged 5–16 to design an A1 poster on the subject: of 'My favourite pathologist'. Entrants should creatively illustrate why their chosen pathologist is their preferred choice. This can be anyone, living or dead, and can be due to a discovery they made or for an invention, or for effectively communicating pathology. For example, entrants could explore Edward Jenner and the discovery of the smallpox vaccine.

Entries must include a clear title, your name, text and images and/or diagrams. Prizes will be awarded in two categories: primary and secondary schools. The winning entry will receive £50 of Amazon vouchers.

'Art of Pathology' competition
This competition is a celebration of the objects that are vital to the practice of pathology. We are seeking your best artistic drawings of a pathology object that plays a significant role in the work of pathologists or has revolutionised diagnosis and treatment around the world. It could be an illustration of a microscope or painting of a pigeon, with a 25–50 word caption telling us how it relates to the pathology. Prizes will be awarded in three categories: under 11s, 11–18 and adults (18 and over). £100 will be awarded to the most creative work in each category.

Prize draw for all event organisers
As part of our celebrations, we will also be rewarding four lucky event organisers with some great prizes. We will select a winner from England, Scotland, Wales and Northern Ireland to each receive £100 simply for registering their National Pathology Week event on our public engagement website, www.ilovepathology.org. Open to all event organisers, you will need to register your event by 1 November 2015 and also submit a brief event report for The *Bulletin* by 13 November 2015, to be in with a chance of winning. We hope to encourage more pathologists to get involved in public engagement through this prize and offer the opportunity to fund a future event. So get registering!

How to enter
For further details, please visit www.ilovepathology.org. Entries for the first three competitions must be submitted to prizes@rcpath.org by Sunday 11 October 2015.

Prizes
The winning entries will be featured in the College's journal, The *Bulletin*, and published on the College website, www.rcpath.org

Science communication training

The next session of science communication training will take place at the Foresight Centre in Liverpool on Thursday 10 September 2015. Run by Karen Davies from the Science Museum, the session will be an excellent opportunity for members to gain experience in organising events and working with the public. Places are limited and will be offered on a first-come, first-served basis.

For information on the terms and conditions, see www.ilovepathology.org/whats-in-thenews/science-communication-training

To attend or for more details, please contact Amaka on amaka.nwagbara@rcpath.org or 0207 451 6717.

The Royal College of Pathologists Research Medal Winners 2014

The Royal College of Pathologists' Gold and Specialty Research Medals are awarded annually for outstanding research work undertaken by pathologists or scientists in training. The Gold Research Medal is awarded for the best research undertaken in all specialties in that calendar year (30 June – 1 July), while the Specialty Research Medals are awarded to the best candidates in each of the major specialties of the College.

MHC class I molecules are preferentially ubiquitinated on endoplasmic reticulum luminal residues during HRD1 ubiquitin E3 ligase-mediated dislocation.
Published in *Proc Natl Acad Sci USA* 2013;110:14290–14295.

Gold Medal – Dr Marian Burr (histopathology trainee)

MHC class I molecules (MHC I) occupy a unique role in the biology of all nucleated cells due to their remarkable ability to display the cellular protein content in the form of small peptides at the cell surface, allowing immune recognition of viral-infected and malignant cells. Since aberrant MHC I expression can tip the balance towards infection, malignancy or autoimmune disease, each step in the MHC I assembly pathway must be precisely regulated, including the assembly of MHC I heavy chain/β2-microglobulin/peptide complexes in the endoplasmic reticulum (ER), their trafficking to the cell surface and subsequent turnover. MHC I regulation thus provides a unique and clinically important insight into cellular quality control pathways.

Dr Marian Burr and Dr Suzy Lishman

We previously demonstrated that MHC I molecules that fail to stably associate with Đ2-microglobulin or peptide are targeted for ER-associated degradation (ERAD) by the E3 ubiquitin ligase HRD1. This involves ubiquitination of the MHC I heavy chain and its extraction from the ER into the cytoplasm for degradation by the proteasome. ERAD is a critical cellular pathway that clears aberrant or surplus proteins from the ER and is pivotal to the pathogenesis of diverse diseases. One of the central unresolved questions in the ERAD field is how membrane-bound and secretory proteins located partially or completely within the lumen of the ER are transported (dislocated) across the ER membrane for degradation by the ubiquitin-proteasome system in the cytoplasm, although evidence indicates a fundamental role for ER-resident E3 ubiquitin ligases in this process. Our findings identified MHC I as one of the few known endogenous substrates of HRD1, a key ERAD E3 ligase, providing a unique opportunity to investigate the mechanism of HRD1-mediated dislocation of membrane-bound proteins.

In this work, we demonstrate that MHC I molecules are targeted to the HRD1 ligase complex by ERAD-dedicated chaperones in the ER lumen. Unexpectedly, given that ubiquitination is a cytoplasmic event, MHC I molecules (which have exposed ubiquitinatable residues in their cytoplasmic tail) are preferentially ubiquitinated on residues in their ER luminal domain. We show that HRD1-dependent dislocation of MHC I molecules proceeds via unusual mechanism in which initial exposure of part of the MHC I luminal domain to the cytoplasm precedes ubiquitination and extraction of MHC I from the ER. Defining the molecular details of HRD1-mediated ERAD is fundamental to understand and manipulate this important cellular pathway.

TRAF2 Facilitates Vaccinia Virus Replication by Promoting Rapid Virus Entry
Published in *J Virol* 2014;88:3664–3677.

Specialty Medal, Smaller Specialties – Dr Pip Beard

Vaccinia virus (VACV) is the prototype poxvirus and often used as a biological tool to investigate interactions between viruses and their host cell. We undertook a wide-ranging RNA interference (RNAi) screen to identify cellular proteins that inhibited or promoted VACV replication in HeLa cells. We identified TRAF2 as a strongly proviral cellular protein with loss of TRAF2 expression, either through siRNA treatment of HeLa cells or through genetic knockout in murine embryonic fibroblasts (MEFs), leading to significant reductions in VACV growth. TRAF2 is known to be a regulator of a number of intracellular signalling pathways involving MAPK and NF-ĐB but it had not previously been identified directly as a modulator of viral growth. We investigated its mechanism of action in the replication cycle of VACV and found that TRAF2 inhibits the production of extracellular forms of VACV via effects on the JNK pathway. Surprisingly, this did not impact overall VACV replication. Further investigation revealed an additional and more significant role of TRAF2 in promoting efficient entry of VACV into the cell by facilitating the fusion of viral and plasma membrane at the cell surface. Plasma membrane fusion is used by a number of viruses to enter a cell, therefore TRAF2 may be a broadly acting proviral molecule.

Dr Pip Beard and Dr Suzy Lishman

Polycomb group gene BMI1 controls invasion of medulloblastoma cells and inhibits BMP-regulated cell adhesion
Published in *Acta Neuropathol Commun* 2014;2:10. www.actaneurocomms.org

Specialty Medal, Cellular Pathology – Dr Ashirwad Merve

This project was undertaken at the Blizard Institute, Barts and the London SMD/Queen Mary University of London, as a part of an NIHR Academic Clinical Fellowship (ACF) and an MRC funded Clinical Research Training Fellowship (CRTF), under the primary supervision of Professor Silvia Marino.

Medulloblastoma (MB) is the most common intracranial childhood malignancy and a genetically heterogeneous disease. Despite recent advances, current therapeutic approaches are still associated with high morbidity and mortality. BMI1 is a Polycomb group repressor complex gene overexpressed across medulloblastoma subgroups but most significantly in Group 4 tumours. Bone morphogenetic proteins are morphogens belonging to TGF-Đ superfamily of growth factors, known to inhibit medulloblastoma cell proliferation and induce apoptosis.

In this study, we demonstrated that human MB of Group 4, with greatest overexpression of BMI1, also display deregulation of cell adhesion molecules. We show that BMI1 controls intraparenchymal invasion in a novel xenograft model of human MB of Group 4, while in vitro assays highlight that cell adhesion and motility are controlled by BMI1 in a BMP dependent manner. This raises the possibility that BMI1 could be used as a biomarker to identify groups of patients who may benefit from a treatment with BMP agonists. The future work is to use a genome wide approach to elucidate more comprehensively the molecular mechanisms underpinning the phenotypes observed.

Dr Ashirwad Merve and Dr Suzy Lishman

NDM carbapenemases in the United Kingdom: an analysis of the first 250 cases.
Published in *Journal of Antimicrobial Chemotherapy* 2014;69:1777–1784.

Specialty Medal, Medical Microbiology – Dr Anu Jain

Increasing antimicrobial resistance is of serious concern. This paper described bacteria with the New Delhi Metallo-Ð-lactamases (NDM) enzymes that are a growing therapeutic challenge and global public health threat since their recognition in 2008, owing to their resistance to different classes of antibiotics. These bacteria are also resistant to carbapenems that are reserved for treating infections caused by multi-drug resistant bacteria. This study provided epidemiological and typing data on one of the largest collections of NDM isolates (outside of the Indian subcontinent) from the UK collected over five and half years and included 326 bacterial isolates from 250 patients. The majority of the patients were male (61%) and aged above 60 years (58%). Most of these bacteria were found to be resistant to all carbapenems tested and 76% were also resistant to three aminoglycosides tested; 90% isolates were colistin susceptible. This work highlighted the challenges of increasing antimicrobial resistance.

Dr Anu Jain and Dr Suzy Lishman

Integrated genomic analysis identifies recurrent mutations and evolution patterns driving the initiation and progression of follicular lymphoma.
Published in *Nature Genetics* 2014;46:176–181.

Specialty Medal, Haematology – Dr Jessica Okosun

Follicular lymphoma (FL) is the second commonest non-Hodgkin's lymphoma but as yet remains incurable. The clinical behaviour of FL shows considerable variability and particularly, up to 30–40% of patients will progress into an aggressive form of the disease (transformed follicular lymphoma), which is associated shortened overall survival. The mechanism by which this progression occurs remains unclear. By implementing the latest sequencing technologies, this project allowed us identify and chronicle the genetic changes in a patient's lymphoma as they progressed, what is called temporal clonal evolution. These experiments demonstrated in part the set of genetic alterations necessary for the onset of the lymphoma (what we called 'early driver genes') from those responsible for the switch towards an aggressive pathology (what we called 'late progressor genes'). Interestingly, almost every FL tumour biopsy harbours mutations in genes encoding chromatin regulatory proteins suggesting that epigenetic deregulation is crucial for the tumour development. Further examination showed that, for each patient, every episode of follicular lymphoma appeared to originate from a reservoir founder B-cell population and these findings confirmed our earlier suspicions that current treatments do not cure follicular lymphoma because they fail to eradicate this reservoir founder B-cell population.

My ongoing work involves investigating other aspects of tumour evolution and genetic heterogeneity in FL, as a means of understanding why each patient's lymphoma is unique, whilst our group's focus is now on identifying novel therapeutics that specifically target early driver genetic alterations that are present within this therapy-resistant reservoir population.

Dr Jessica Okosun and Dr Suzy Lishman

An Enzymatic Assay for the Detection of Glycolic Acid in Serum as a Marker of Ethylene Glycol Poisoning.
Published in *Therapeutic Drug Monitoring* 2013;35:836–843.

Specialty Medal, Clinical Biochemistry – Dr Sally Hanton

Ingestion of ethylene glycol is relatively rare in the UK but, if untreated, the metabolites produced can have fatal effects. Ethylene glycol poisoning is therefore classed as a medical emergency. The initial signs and symptoms are non-specific, requiring laboratory analysis for confirmation of the diagnosis. Early diagnosis and appropriate treatment are essential in preventing the onset of the more severe effects of poisoning, which occur due to the accumulation of the acidic metabolite, glycolic acid.

Dr Sally Hanton and Dr Suzy Lishman

Measurement of ethylene glycol and/or its metabolites is usually done using gas chromatography methods, which require specialised equipment and expertise, and are often not available on an emergency basis. We have therefore developed a simple, rapid and potentially automatable method for the detection of glycolic acid in serum as a marker of ethylene glycol poisoning, which could be performed in any laboratory. In the assay, glycolic acid is converted to glyoxylic acid by glycolate oxidase, with the production of hydrogen peroxide. This is converted to a quinoneimine dye for simple spectrophotometric detection.

The availability of this method as a screening test would enable the identification of patients with ethylene glycol ingestion no matter where they presented, minimising delays in diagnosis. This method has the added advantage that glycolic acid concentration is closely correlated to the level of toxicity, so the result may be used to assess the severity of poisoning, enabling appropriate intervention and hence improving patient outcomes.

Workforce details online

Calling all **UK consultants or consultant equivalents** – we need your help to collect workforce details, to ensure that workforce planning is evidence-based and robust.

This is so that the College can better advise the Department of Health, HEE, NHS Wales, NHS Scotland, HSC N Ireland and other relevant bodies on your behalf, to sustain the pathology workforce.

There are **two short pages** to check, and it will take you **less than 5 minutes**.

It is really important you update your professional details now at **www.rcpath.org/workforce/workforce-planning**

Thank you for your cooperation.

Avril Wayte
Assistant Registrar

College members should update their own records using their existing primary email address and password. If you have forgotten your password, please use the 'Forgotten password' facility on www.rcpath.org – just click on 'Sign in' and follow the instructions. If you have not registered yet, and are eligible to register for an online account, please use the website account registration facility. If you have any other queries, contact workforceplanning@rcpath.org

Dr Nick West

Trainees' notes

Trainees comprise 8% of the College membership and, whilst traversing our way from registration to Fellowship, all 840 of us are shaping the very future of our profession. This feature is written by and for trainees to reflect on the journey, discuss training issues and optimise engagement with the College pan-specialty.

In this edition we focus on the small subspecialty of oral and maxillofacial pathology. First, Dr Jenny Graham, an ST2 and Academic Clinical Fellow in Leeds, gives us some insight into the day-to-day activities of a dental pathology trainee.

Dr Jenny Graham

Oral and maxillofacial pathology is a five-year dental specialty training pathway which allows dentally qualified individuals to become consultants in head and neck pathology. Training is broad and covers one year of general histopathology and four years of head and neck pathology. We see a wide range of cases, including teeth, bony specimens, salivary gland tumours, major head and neck cancer resections, odontogenic tumours, mucosal biopsies, lymph nodes, skin, soft tissue and endocrine pathology.

So how does a dentist end up doing histopathology? For me, I was first bitten by the pathology bug as a student, when I did an intercalated degree in cellular and molecular biology and stayed to do a summer job in pathology research. After qualifying, I spent a year in general dental practice and then did dental FY2 and core training in oral and maxillofacial surgery, oral medicine and oral and maxillofacial pathology before joining the head and neck team at St James' University Hospital in Leeds in 2013 as a specialty trainee.

My ST1 year was spent training in general histopathology, following the same curriculum as the medically qualified registrars. Coming in as the only non-medic into the year group felt like a daunting prospect, but I received amazing support from consultants across all the subspecialties. I'm in my ST2 year now and have been back on head and neck pathology full time since August of last year, as part of a team consisting of three consultants, three registrars and one core trainee. We're well integrated within the histopathology department and being part of such a large group of other histopathology trainees is a huge advantage. It's a fantastic working environment – we all help each other out and exchange interesting cases (and the social side of things is pretty good too!).

One of the things that I really love about my job is the variety. The anatomical complexity of many of the specimens we see means that there is never a dull moment in cut up and the host of different tissue types within the head and neck region allows for an extremely wide range of pathologies. It's impossible to be bored – the incredible diversity of cases means that there's really no such thing as a 'routine' day on the job!

I'm also a National Institute for Health Research Academic Clinical Fellow, so research and teaching form significant components of my job. I'm involved with oral cancer research and I deliver pathology teaching to medical and dental undergraduates, which is both rewarding and fun. Balancing the demands of specialty training with trying to get an academic career off the ground can be a bit of a challenge sometimes, but I wouldn't change it for the world.

When I started dental school as an undergraduate, I was fairly confident that I'd be spending the rest of my career in a general dental practice, doing extractions, fillings and root canal treatments. Undertaking pathology training is certainly a radical departure from the normal career trajectory of your average dentist. But oral and maxillofacial pathology isn't your average dental specialty!

Then Dr Tiffany Li, a dental core trainee, describes her recent experience in dental pathology, which she has been able to integrate alongside her clinical training over one year prior to becoming an oral surgeon.

My current training post as a DCT (dental core trainee, which has replaced dental foundation trainee) is split between three specialties: oral medicine, oral pathology and oral radiology. Out of these specialties, I must admit that oral pathology was the one I had the most trepidation about. The last time I covered any histopathology was in my final year of dental school. As we know, hospital

Tiffany Li

clinicians often only look for the bottom-line diagnosis of a biopsy/neck dissection/resection and I could not say that before this year that I ever thoroughly read the microscopic description of a histopathology report.

I have gained a wider experience of other areas of the head and neck, as well as the oral cavity, which offers a good (if not slightly daunting) variety. Working in pathology, I now experience dilemmas such as what final diagnosis to give for unusual non-textbook cases and determining whether a malignant lesion has been fully excised. This is an important aspect of patient treatment that I would not appreciated having been a standard clinician.

This year I had the chance to observe a post-mortem which is not something you'd normally do as a dentist, but as it happened it was an excellent way to recap the anatomy of the neck. I am also now able to appreciate how oral radiology ties in with oral pathology when observing FNAs being performed during ultrasound scans of the neck and salivary glands.

The real highlight of the post is that I can experience continuity of treatment – from assessing the patient on the oral medicine clinic, performing the biopsy procedure, reporting on the histopathology and presenting the patient with the diagnosis back on clinic. It is quite a unique component of the job and certainly gives me a good understanding of what does (or more importantly, what doesn't) constitute a good biopsy. This is particularly useful for my career aspiration in oral surgery, where biopsy sessions will be a staple. It turns out that even something as simple as good handwriting, in addition to a sufficient sample, is very important for effective processing and reporting.

As an oral pathology DCT, I have learned the other half of the story of what happens next after you that put that piece of tissue into the little pot of formalin and send it away. And for biopsies in the future, I will certainly now take extra time to read the microscopic description of the histopathology report!

Would you like to contribute to this page? Why not write a reflective piece about a recent case, meeting, activity, etc. you have been involved with? We'd love to hear from you. What did you learn from it that would be useful for other trainees? Email us at tac@rcpath.org

The importance of cellular pathology in cancer management and research: prize-winning College trainees at NCRI Conference

The College sponsored five trainees to attend the National Cancer Research Institute (NCRI) annual conference in Liverpool in November 2014 to promote the importance of cellular pathology in cancer management and research. This was done through an exhibition stand, a schools event and a 'spotlight' event. These activities were well recieved and are described in more detail below.

Introduction

The NCRI annual conference is the UK's leading academic cancer meeting, attended by many individuals with an interest in cancer care and research from across the UK and around the world, including clinicians, scientists and patient representatives. The NCRI is a partnership of UK cancer research funders that has supported more than £4.5 billion of cancer research since 2002. For a second year, the College selected and sponsored five cellular pathology trainees to attend. We were mentored by Dr Bridget Wilkins, a consultant histopathologist who is also a pathology lead for the NCRI. We were also assisted by Hayley Morris, another enthusiastic cellular pathology trainee who was attending the meeting, as an MRC-funded Clinical Research Fellow, to present a research poster.

Our primary remit was to promote the importance of cellular pathology in cancer diagnosis, treatment and research via an exhibition stand, a pathology 'spotlight' event and facilitation of the conference's engagement programme for local schools. In addition, we had the benefit of attend-

ing the scientific lectures and workshops, observing the posters and interacting with a wide variety of other delegates and exhibitors. The conference coincided with National Pathology Week and provided an excellent opportunity to promote pathology in association with that.

The exhibition stand

Our main contribution to the conference was to create an exhibition stand with posters, demonstration materials and games. Our presentations outlined the various stages of histology preparation, from obtaining tissue to preparing and examining sections. We included real tissue blocks, slides and histological 'kit' (standard and megacassettes, tissue moulds, etc.) supplemented with large printed photomicrographs to demonstrate what is seen down the microscope. We discussed the comparisons in sample utility between endoscopic/needle biopsy and excision/resection specimens. We also included material to demonstrate tissue microarray (TMA) construction and interpretation, DNA extraction, DNA quality issues affecting research using formalin-fixed tissue and the importance of TP53 as a key regulatory gene influencing cancer risk. The demonstrations were very popular. Feedback indicated that our discussions of these at the stand were useful in illuminating a crucial but often poorly understood part of the cancer patient's pathway. Other demonstration materials explored recent advances in histopathology, outlining new molecular pathological techniques and three dimensional imaging of specimens.

We also ran two games. One required delegates to match photomicrographs of normal histology to the appropriate body area on a poster of Leonardo da Vinci's 'Vitruvian Man'. This was very popular and (with a little help!) many people with no histology knowledge could identify and locate various tissues. The second game involved matching the same pictures of normal histology with photographs of malignancies arising from those tissues; delegates found this more difficult but enjoyed the challenge!

Our stand was visited by people from very diverse backgrounds, including clinicians, researchers and interested members of the public. It was gratifying to see how much interest there was, not only in the future potential of pathology and molecular advances but also in the day-to-day work of cellular pathologists.

Lectures and workshops

The conference provided an excellent opportunity to hear talks from world-leading experts in all aspects of cancer: from basic and translational research through to clinical trials, symptom management, psychosocial issues and palliative care.

One of the general-interest highlights was the plenary lecture delivered by David Spiegelhalter (Winton Professor for the Public Understanding of Risk at the University of Cambridge) on 'Communicating risk and uncertainty to patients and the media' – critical for obtaining truly 'informed' consent. The concept of a 'microlife' seemed to have particular resonance with the audience. A microlife is calculated by dividing the duration in minutes of an average adult lifespan (amazingly still only 57 years) by one million, giving 30 minutes per microlife. It is then possible to quantify positive or detrimental influences on health by the number of microlives gained or lost from life expectancy. For example, 20 minutes of moderate exercise every day results in a gain of one microlife per day.

Of more particular interest to pathologists was a workshop entitled 'Molecular pathology – the genomic basis of cancer', which included a talk from Reinhard Buettner (Cologne University Hospital and Center for Integrated Oncology) on the introduction of deep sequencing of gene sets into routine diagnostic histopathological assessment of tumours. His department's model of integrated cellular and molecular pathology is a blueprint of excellence for improving diagnosis, classification and staging of tumours in order to deliver personalised medicine. Also arguing the case for the central role of cellular pathologists in the future of genomic medicine was the workshop host, Manuel Salto-Tellez (Queen's University Belfast). Professor Salto-Tellez gave examples of the benefits of integrating biology, pathology and clinical medicine already shown by research into prostate, rectal and small bowel cancer. He described his department's integrational platform, 'Pathology Integromics for Cancer' (PICan), which brings together histopathological images, biomarker expression data, genomic profiles and clinical data.

In the 'Clinical trials showcase', Rebecca Fitzgerald (MRC Research Centre, Cambridge) reported a trial of the Cytosponge TFF3 test for diagnosis of Barrett's oesophagus. The Cytosponge is an ingestible gelatine capsule enclosing a mesh attached to a cord. Once the capsule is swallowed and dissolved, the mesh expands and a cytological sample of oesophageal mucosa is collected upon removal by pulling on the cord. Samples are processed within the intact mesh and wax-embedded; sections are then stained for trefoil factor 3 (TFF3), an immunomarker for Barrett's oesophagus. This research trial has confirmed that the procedure is well tolerated, compared with sampling at endoscopy, and has good specificity and sensitivity. The results suggest a role for this test in the diagnosis of Barrett's oesophagus, including use for screening in primary care settings.

The Cancer Research UK Lifetime Achievement Award is presented annually at the confer-

ence, with a lecture from the prizewinner providing insights into the career of a distinguished researcher and an overview of advances made over the years in their chosen field. This year's winner was Ron Laskey (University of Cambridge), who discussed his work on intranuclear proteins; in particular the work on minichromosome maintenance (MCM) proteins and geminin, which help regulate chromosomal duplication and influence export of mRNAs from the nucleus.

Another excellent lecture was the British Association for Cancer Research's Tom Connors lecture, delivered by Margaret Frame (CRUK Edinburgh Centre), who described her lab's work on focal adhesion kinase (FAK). FAK has previously been implicated in the development and metastasis of various epithelial tumours. Professor Frame's team has helped delineate the mechanisms by which it promotes cancer cell survival, involving both intracellular mechanisms and modulation of the tumour microenvironment to hamper immune responses to tumour cells.

This was the tenth NCRI annual conference, and to mark this anniversary a series of celebratory talks reflected on the strides that have been made in cancer research over the past decade. Progress was reviewed and speakers anticipated where research might lead in the future. The topics included genomics, drug discovery, metabolomics, clinical trials and localised therapies, and reflected not only some of the most significant areas of cancer research, but also the range of disciplines represented at the conference.

Schools' event

During the conference we also contributed to an interactive workshop on malignant melanoma, organised for local A-level students.

We were each assigned to a group of approximately ten students, and began the session by discussing the epidemiology and aetiology of melanoma. Liverpool has some of the highest sun-bed usage in the UK, so conversations with our students regarding the risk factors for melanoma were particularly apt. We used clinical images to show moles and melanomas at different sites. After explaining the 'ABCDE of Melanoma', we asked them to judge whether they thought each lesion was benign or malignant; they all did very well! Using these photos as part of the session really engaged the students and prompted them to ask plenty of questions.

We then stayed with our groups for the rest of the morning while they heard about current melanoma studies from a number of research scientists and clinicians, providing an overview of their work. This gave the students a glimpse into the life of a medical researcher and provided them with a flavour of how a better understanding of disease at a molecular level is leading to improved, personalised treatments. It was our role to help the students piece together the wide range of information they were presented with over the morning. At this stage, the task of each group was to help create a short 'newsflash' about melanoma research to be displayed on the conference electronic bulletin boards. Individually and in groups the students also broadcast numerous tweets reflecting the topics that had most impressed them about advances in melanoma detection and treatment..

We all found this an excellent opportunity to engage A-level students in discussions involving pathology and research. Feedback from the session was highly positive... we even learnt some new things ourselves!

'Spotlight'

A new feature at this year's conference was a small glass-walled theatre in the exhibition hall, within which a series of 'spotlight events' were held to showcase selected products, services and scientific advances. With our National Pathology Week remit of presenting pathology to non-pathologists very much in mind, we improvised a short, light-hearted performance entitled 'The Past, Present and Future of Pathology'. For a select, diverse audience of medical professionals, researchers and interested members of the public, we left our collective comfort zone well behind in order to deliver a message about what we do, how we have come to do it and what lies ahead.

Starting from a few ideas generated in discussion on arrival at the conference on Sunday afternoon, in addition to our work at the exhibition stand, we created stage props and a narrative for our enactment on Monday evening. It was extremely challenging and, for this very reason, is an aspect of the conference that we found, on reflection, to have been one of its most enjoyable aspects.

We put together a short dramatic production to demonstrate how pathology developed from understanding pathophysiology through autopsies, to classifying disease morphologically using a microscope, to the current and future potential of using immunostaining and molecular tech-

Spotlight event; demonstration of immunohistochemistry

niques to provide details about prognosis and identify targets for personalised therapy. Our presentation included a brief virtual autopsy followed by lively enactments of the key principles of immunohistochemistry, PCR and FISH. To underline the importance of pathologists and their continuing role in medicine and research, we concluded with a video demonstration of recent advances in digital pathology.

Conclusion

The conference was a fantastic opportunity for us to learn more about the cutting edge of cancer research. The plenary and workshop talks were inspirational and highlighted for us the essential involvement of pathology in many studies. Working with one another to develop and present our materials for the exhibition stand, schools' and spotlight events was very stimulating. We greatly enjoyed conversing with other trainees, consultants, specialist nurses, non-clinical researchers and patient representatives. Special thanks are due to Hayley, who joined in unstintingly with all of our activities.

We extend our particular thanks and appreciation to The Royal College of Pathologists for their generous sponsorship. We hope our efforts have helped to achieve wider public and professional understanding of the role of cellular pathologists in cancer research. We were all inspired and thoroughly enjoyed making our own small contributions to a truly excellent conference.

Dr James Sampson
Department of Histopathology
Royal Victoria Infirmary

Dr Livia Raso-Barnett
Department of Cellular Pathology
Royal Sussex County Hospital, Brighton

Dr Michael Rathbone
Department of Histopathology
St Thomas Hospital, London

Dr Nicholas West
Clinical Lecturer in Histopathology, University of Leeds and Leeds Teaching Hospitals NHS Trust, Leeds

Dr Renukha Govinda Rajoo
Department of Histopathology
St Thomas Hospital, London

Dr Hayley Morris
Clinical Research Fellow, CRUK Beatson Institute, Glasgow

The Royal College of Pathologists' NCRI Conference poster prize report

Association of a DNA damage response deficiency (DDRD) assay and prognosis in early stage oesophageal adenocarcinoma.

Background

Oesophageal cancer is the eighth most common cancer worldwide, with 480,000 cases diagnosed annually. In the UK the incidence of the disease in men has risen 68% in the last 45 years, with the most common pathological subtype being oesophageal adenocarcinoma (OAC). The reason for this increase in OAC is unclear but development of this tumour is strongly associated with the pre-malignant metaplastic condition, Barrett's oesophagus. This is caused by gastro-oesophageal reflux disease and, along with obesity, smoking and alcohol intake, is one of the strongest risk factors for OAC. Despite efforts to screen for Barrett's oesophagus and pre-operatively select EAC patients who are likely to benefit from potentially curative surgery, survival remains poor. The five-year survival rate is 13% and even in early stage loco-regional confined disease this figure rarely exceeds 40%. A significant improvement in overall survival has been demonstrated with neo-adjuvant or peri-operative therapy, but the optimal approach for individual patients remains unclear. There is a pressing need to identify biomarkers capable of predicting response, enabling clinicians to stratify patients to the most beneficial neo-adjuvant therapy.

The DNA-damage response deficiency (DDRD) assay

The Fanconi anaemia (FA)/BRCA pathway is essential for the repair of inter-strand crosslinks and is lost in 15–30% of solid tumours. A 44-gene signature to detect loss of the FA/BRCA pathway and so predict response to DNA-damaging chemotherapy was developed (Kennedy group, QUB) by characterising DNA damage response-deficient (DDRD) primary breast tumours. When tested in an independent breast cancer dataset (n = 203), DDRD assay positivity was associated with

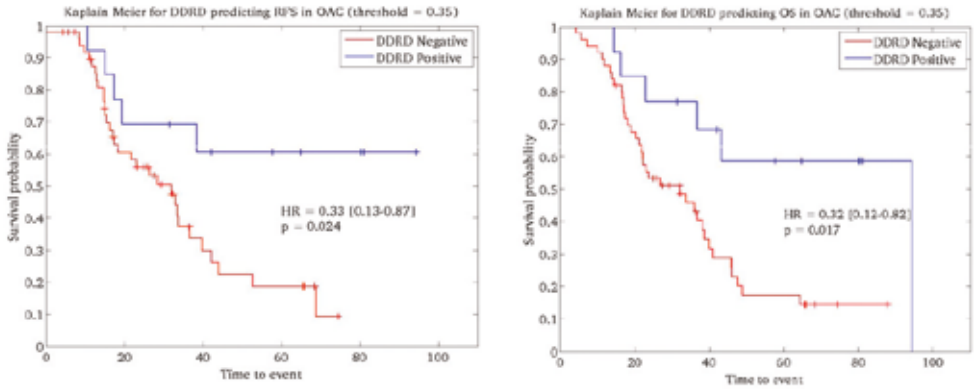


Figure 1 The DNA Damage Response Deficiency signature in Oesophageal Adenocarcinoma.
Kaplan Meier analysis of disease-free (A) and overall survival (B) for 62 oesophageal adenocarcinoma patients treated with neo-adjuvant cisplatin-based chemotherapy followed by surgical resection.

an odds ratio (OR) of 3.96 (95% CI 1.67–9.41; p = 0.002) and in a cohort of 191 node-negative breast cancer patients the assay predicted five-year disease-free survival (DFS) following adjuvant chemotherapy with a hazard ratio (HR) of 0.37 (95% CI 0.15—0.88; p = 0.03). Validated in 664 chemo-naive patients indicated that the DDRD signature was not prognostic and only acted as a biomarker in the context of chemotherapy.

The DDRD assay in oesophageal adenocarcinoma

Considering one of the most active drugs in OAC is the DNA-damaging agent Cisplatin, we investigated the efficacy of the DDRD signature in OAC. We analysed 63 formalin-fixed paraffin-embedded (FFPE) pre-treatment endoscopic biopsy specimens from early stage OAC patients treated with cisplatin-based neo-adjuvant chemotherapy followed by surgical resection between 2004 and 2010 at the Northern Ireland Cancer Centre. Biopsies were reviewed for pathological subtype prior to marking for macrodissection and samples containing at least 50% adenocarcinoma tissue were taken forward. The matched resection specimens were scored according to the Mandard score (<3 = pathological response). Sufficient quality RNA was extracted from 62 out of the 63 FFPE biopsy specimens (98.4%) and hybridised to the Xcel™ array, a cDNA microarray-based technology optimised for archival FFPE tissue (Almac/Affymetrix). All samples were scored for the DDRD assay.

The association between the DDRD score and prognosis was assessed by Kaplan-Meier analysis and Cox proportional hazards regression. A total of 13 samples (21%) were characterised as DDRD positive, with the remaining 49 samples (79%) DDRD negative. DDRD assay positivity demonstrated a statistically significant association with relapse-free survival (HR 0.33; 95% CI 0.13–0.87; p = 0.024) resulting in a median RFS of 65.2 months for DDRD-positive patients vs 33.9 months for DDRD-negative patients (Figure 1). Following multivariate analysis the effect of the DDRD assay on RFS remained statistically significant when other important risk factors were included in the model (HR 0.31, 95%CI [0.11, 0.88], p = 0.027). Median overall survival was significantly higher in DDRD-positive patients (94.3 months vs 32.2 months; HR 0.32; 95% CI 0.12–0.82; p = 0.017). Following multivariate analysis, the effect of the DDRD assay on OS remained statistically significant when other important risk factors were included in the model (HR 0.36, 95% CI [0.13, 0.95], p = 0.04). The odds ratio of pathological response following neo-adjuvant chemotherapy was 1.91 (95% CI 0.32–11.5) suggesting a trend toward the prediction of response. These results indicate that the DDRD assay is a strong prognostic marker in the setting of neo-adjuvant chemotherapy for early stage OAC.

To determine whether the DDRD assay was prognostic independent of treatment, it was applied to a dataset of 75 fresh frozen tissue samples derived from potentially curative resections for oesophageal and gastro-oesophageal junction tumours. These resections were carried out between 1992 and 2000 and none of the patients received neo-adjuvant chemotherapy. All samples were analysed using a custom-made Agilent 44K 60-mer oligo-microarray. No difference in survival was noted between the DDRD positive and negative populations HR 0.64 (95%CI 0.17–2.43). Further Affymetrix-based validation sets are being sought in order to provide a consistent analysis platform between datasets.

In conclusion, our results indicate that the DDRD assay could personalise the treatment approach and improve outcomes for early stage OAC patients. It represents the first cDNA array-based biomarker to be developed from FFPE tissue in OAC and, despite the small amounts of tissue involved, we were successfully able to transcriptionally profile 98% of pre-treatment

FFPE endoscopic biopsies. The DDRD assay demonstrates a strong association with prognosis with a positive DDRD assay result predicting increased RFS (HR 0.31, 95% CI [0.11–0.88], p = 0.027) and OS (HR 0.36, 95% CI [0.13–0.95], p = 0.04) compared with the assay negative population. Also, DDRD-positive patients have a five-year survival of 59% compared to 17% for DDRD-negative patients. Expansion of this validation set is ongoing in order to increase the statistical power of the analysis. We believe the DDRD assay will provide an opportunity to personalise the treatment approach for neo-adjuvant chemotherapy in OAC, leading to improved survival outcomes in this poor prognosis disease.

Richard C Turkington[1], Laura A Hill[2], Damian McManus[3], Stephen McQuaid[4], Ken Arthur[4], Jacqueline James[4], Manuel Salto-Tellez[1], Timothy S Davison[1,2], Claire Harrison[5], Colin Purcell[5], Richard H Wilson[1,5], Thomas P McGregor[6], Ricky Sharma[6], Rebecca C Fitzgerald[7], Patrick G Johnston[1,2], Paul Harkin[2], Martin Eatock[1,5], Richard D Kennedy[1,2]

1 Centre for Cancer Research and Cell Biology, Queen's University Belfast, Belfast, Northern Ireland
2 Almac Diagnostics Ltd, Craigavon, Northern Ireland
3 Department of Pathology, Belfast City Hospital, Belfast, Northern Ireland
4 Northern Ireland BioBank, Belfast, Northern Ireland
5 Northern Ireland Cancer Centre, Belfast City Hospital, Belfast, Northern Ireland
6 Gray Institute for Radiation Oncology and Biology, University of Oxford, Oxford
7 Hutchison/MRC Cancer Unit, University of Cambridge, Cambridge

Inaugural joint histopathology and microbiology trainees' course in the East of England

Introduction

The diagnosis of infection often involves different specialties and requires a multidisciplinary approach. Histopathology and microbiology work together in complex cases, yet formal regional or national collaboration is rarely seen[1] and educational events for trainees from either specialty rarely focus on this approach to multidisciplinary working. Bringing trainees together for joint teaching would allow them to develop a better understanding of the complementary role that each of the specialties can play in challenging cases and possibly facilitate future collaborations.

We obtained funding from the East of England Deanery's Fund for Innovative Training to host a joint training session for microbiology and histopathology trainees in the East of England Deanery. In order to try and quantify the impact of this session, we collected questionnaires from delegates both before and after the event.

From left: Dr Liz Hook, Professor Sebastian Lucas, Dr Fiona Cooke, Dr Luke Bedford and Dr Anna Paterson

Setting

The East of England Deanery covers a large region and includes teaching and district general hospitals. Microbiology and histopathology trainees do not normally have joint training sessions and exposure to the other specialty is through departmental programmes or individual practice.

The event was organised by the authors and consisted of two sessions on a single day. The morning was attended by histopathology trainees and comprised a series of teaching sessions focused on the pathological features of infections at different sites.

The afternoon programme consisted of parallel sessions with an introduction to microbiology for histopathology trainees and an introduction to infectious diseases in histopathology for the microbiologists. These were followed by joint sessions, firstly from invited speaker, Professor Sebastian Lucas, an expert in infectious diseases pathology. There followed a series of joint case presentations by trainees. The cases had involved input from both the histopathology and microbiology departments to reach a final

diagnosis, and were selected by the organisers. A pair of trainees, one from histopathology and one from microbiology/virology, then worked collaboratively to create a 10-minute presentation which summarised the case and answered questions from the audience.

Methods

An initial questionnaire collected baseline demographics on the trainees and the frequency with which they interacted with the other specialty. The pre-session questionnaire collected information on the trainees' impressions of interacting with either microbiology or histopathology, and the post-session questionnaire contained the same questions plus questions regarding future joint working. Responses were based on a Likert scale with 'Strongly disagree', 'Disagree', 'Agree' and 'Strongly agree' as options. The questions and responses are listed in Table 1.

All questionnaires were anonymous and trainees' identities could not be ascertained from the data collected. Questionnaires were collected from delegates at the end of the event and collated.

Results

Forty-five trainees were present at the joint training event, from which 41 questionnaires were available for analysis. All had completed the demographics section, whilst 39 and 40 responses were received for the pre- and post-session questionnaires respectively.

24/45 (54%) of attendees were from a histopathology background, with the rest from a mixture of bacteriology, virology and infectious diseases backgrounds. Attendees from all training grades (ST1 to 5 or equivalent) were present. Most reported little interaction with the other specialty, with 28/45 (68%) trainees reporting contact only annually or less frequently.

The responses to the pre- and post-session questionnaires showed a trend towards improving understanding of the other specialty's work and their role in the diagnosis or management of infection. Most of the attendees reported positively that discussion aided in the management and diagnosis of infection, with an increase in those responding as strongly agreeing rather than agreeing following the event. The greatest changes from negative to positive responses occurred in the questions regarding understanding of how the other specialty worked (questions 4 and 5).

Of the 38 valid responses for question 6, 35 (92%) were positive, either strongly agreeing or agreeing that they may consider a joint project in the future.

8/14 (57%) trainees who had presented the joint cases felt that it was more difficult to present to a joint audience.

Discussion

The responses to the joint microbiology/histopathology educational day were positive in a number of areas. It was encouraging to see that responders reported an improvement in their understanding of the other specialty and an increase in the degree to which attendees agreed that discussion aided in the management of cases following the event.

The response rate was very good, and the majority of responders completed all the relevant sections.

There are limitations with data of this nature. We cannot assume retention or long-term improvements in attendee knowledge or the degree of cooperation between specialties. Based upon

Table1: Questionnaire responses

Question	Strongly disagree		Disagree		Agree		Strongly agree	
	Pre	*Post*	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
1. Discussion with histo/micro adds valuable insight into clinical cases in my specialty	1 (2.6%)	1 (2.5%)	1 (2.6%)	0	29 (74.4%)	20 (50%)	8 (20.5%)	19 (47.5%)
2. Discussion with histo/micro may change the diagnosis of cases	1 (2.6%)	1 (2.5%)	0	0	25 (64.1%)	14 (35%)	13 (33.3%)	26 (65%)
3. Discussion with histo/micro may change the management of cases	1 (2.6%)	1 (2.5%)	1 (2.6%)	0	25 (64.1)	14 (35%)	13 (33.3%)	25 (62.5%)
4. I have a good understanding of the strengths and limitations of histo/micro	3 (7.7%)	1 (2.5%)	10 (25.6%)	0	24 (61.5%)	28 (70%)	2 (5.1%)	11 (27.5%)
5. I understand how the work done in histo/micro can affect the work of the other specialty to work with sample, and how best to plan for joint processing of specimens	3 (7.7%)	1 (2.5%)	11 (28.2%)		22 (56.4%)	23 (57.5%)	3 (7.7)	16 (40%)

positive feedback, we have secured funding to run a similar event in the near future. It may be that this will enable us to measure the longer term impact upon inter-specialty working.

We feel that events of this nature are important to improve joint working between microbiology and histopathology. There are clear roles for both specialties in the diagnosis of infection, especially in complex clinical cases. Without the opportunity for formal joint learning and discussion it can be very difficult for specialties to come together. There are aspects of both specialties which affect the working of the other, and without at least some exposure and teaching, it can be very difficult for specimens follow an efficient and appropriate route through the clinical laboratory, which has a direct impact on patient care.

In summary we show a positive response to the first joint training event in microbiology and histopathology in our Deanery, which improved the understanding of attendees' multidisciplinary approach to the diagnosis and management of infectious disease.

We feel that further events of this kind should play an important role in the education of pathology trainees and should be encouraged nationally.

Dr Luke Bedford and Dr Fiona Cooke
Department of Medical Microbiology, Clinical Microbiology and Public Health Laboratory
Addenbrooke's Hospital, Cambridge

Dr Anna Paterson and Dr Liz Hook
Department of Histopathology
Addenbrooke's Hospital, Cambridge

Reference

1. Lucas S. UK infectious diseases and diagnostic cellular pathology: remit, constraints and capacities. *RCPath Bulletin* 2011;156):238–242.

Awards open to trainees

RCPath Trainee Research Awards

Each year the College awards specialty research medals for outstanding research work undertaken by pathologists or scientists in training. The awards are open to all junior pathologists or scientists registered with the College or a UK Regulatory Council for training purposes during the year the submitted paper was published. The application period runs from 1 April to the first week of July.

The aim is to recognised and reward the best of the excellent science that College trainees publish, and generate encourage for them in research careers. By enhancing their CVs, the College hopes to improve their opportunities to benefit from external research awards and thus ultimately increase research activity within pathology.

Trainees – please download details from the College website (www.rcpath.org/research/specialty-research-medals) and apply for the 2016 medals.

Consultants – please encourage your trainees to apply!

Oliver Memorial Trainee Bursary

The College administers the Oliver Memorial Fund, set up in memory of Percy Lane Oliver, who in 1921 created the world's first voluntary blood donor service. A Percy Oliver Transfusion Medicine Trainee Travel Bursary is offered each spring and autumn to make up to £500 available towards travel and accommodation costs for trainee clinicians and clinical scientists, enrolled in a recognised UK training scheme and working in the field of transfusion medicine, to enable their participation in a national or international blood transfusion meeting.

Details are available on the webpages of the College's Transfusion Medicine Specialty Advisory Committee: www.rcpath.org/committees/specialty-advisory-committees/transfusion-medicine.htm

The future of the Coronial autopsy service

Dr David Bailey

Her Majesty's Coroners have been in existence since being empowered by Richard the Lionheart in the late 12th century. After Richard was ransomed from the German robber barons along the Danube, the royal purse was bankrupt. The Crown had to raise funds, but the Sheriffs controlled the flow of taxes in each county at that time. The 'General Eyre' (an early royal court) of September 1194 was held in the County of Kent, and Article 20 boldly stated, "In every county of the King's realm shall be elected three knights (Coroners) and one clerk, to keep the pleas of the crown." This was the statutory basis for the post of Coroner. For 20 years or so, the Coroners and the Sheriffs battled for the legal right to prosecute the law and keep the proceeds. Individuals appointed to the post of Coroner originally had to be knights, and they had to possess an annual income of at least £20 per year. The hope was that well-to-do men would not embezzle and steal from the Crown in the way that Sheriffs did. Twenty years later, one of the main statutes of the Magna Carta stated that neither Coroners nor Sheriffs should hold the Pleas of the Crown.

The duties of medieval Coroners were:

- to service the Royal Courts of Law (the General Eyre)
- to investigate all aspects of life and crime, including murder and manslaughter
- to keep records of the proceedings on Coroners' Rolls
- to inspect a corpse (this legal duty existed until 1980).

Formal medical input into the investigation of deaths started in 1836, when the Coroner was officially allowed to pay a fee to a medical witness. These enquiries were often carried out by police surgeons, whose main duty was the inspection and recording of injuries and the investigation of rape.

In 2013, approximately 230,000 (45%) of all registered deaths in England and Wales were reported to a Coroner.[1] Over 94,000 of these (41%) underwent a Coroner's autopsy, with around 30,000 (13%) resulting in a Coroner's inquest. Since the mid-1990s, the proportion of deaths reported to the Coroner that are investigated by autopsy has fallen by a third (from 61% to 41%), although that reduction bottomed out at the start of this decade and shows no sign of further reduction. The proportion of all inquests that involve an autopsy has fallen from 98% to 84%, however the number of autopsies performed that went to inquest has actually risen by around 15%. This service requirement is not going away.

In 2015, the Coronial autopsy service in England and Wales is provided in hospital or public mortuaries, usually by histopathologists primarily employed by the NHS, who nevertheless answer to the Coroner in these cases. Remuneration has been mostly static for over a decade, and the financial arrangements by which pathologists are (or are not) paid are as diverse as the ways in which the work is accounted for in their job plans. In some areas, for example central London, many Coroner's autopsies are carried out by forensic pathology consortia.

Attendance at court almost always occurs during the working day and thus impacts on the delivery of care to patients by pathologists and other healthcare staff who are called as witnesses. Incidentally, a Coroner is entitled to fine or jail any individual (£1000 or up to 28 days respectively) for contempt of court, which would include non-attendance when summoned to an inquest.

In 2010, the histopathology curriculum was changed to make autopsy training optional in stages C and D of the programme. This followed a decade of debate and calls from many quarters for autopsy-free training. As Director of Training at that time, I argued against the change, believing then – as I do now – that autopsy training isn't just about training to do autopsies. It is my belief that autopsies are the best way to appreciate systemic pathology and the effects that diseases have on the rest of the body.

Histopathology trainees are still required to undertake autopsy training until the end of stage B, and questions about autopsy practice and pathology are still included in the Year 1 objective structured practical examination (OSPE) and Part 1 FRCPath examination. After Part 1, trainees may opt out of autopsies and their programme is consequently shortened by three months.

The College has previously received information regarding regions or hospitals that have struggled to provide a Coroner's autopsy service. Reasons given included the poor level of remuneration, conflicts with Coroners over the ability of the pathologist to adequately investigate deaths, the impact of the Human Tissue Act and the introduction of optional autopsy training as described above. The latest of these communications was a letter from a senior

Coroner in England, documenting the collapse of the autopsy service across the county that he serves.

We decided that the time had come to consult the College Fellowship and collect as much data as possible to provide a definitive picture of the Coronial autopsy service in England and Wales in 2015. A SurveyMonkey questionnaire was circulated to all histopathology Fellows and all stage C and D histopathology trainees on 22 June 2015. To date, we have received 533 responses, the second highest number of responses recorded by a College-created survey. The survey remains open at https://www.surveymonkey.com/r/T3V7GY7, should readers wish to undertake it. It takes just a few minutes to complete.

Key survey results

463 consultants and 70 trainees have taken the survey. All English regions, Wales, Scotland and Northern Ireland were represented.

Consultants

- 95% took the autopsy exam as an integral part of the FRCPath.
- 71% undertake Coroner's autopsies.
- The number of autopsies undertaken annually varies from 2 to over 800 per year. See Table 1 for more data.

Respondents were asked to describe how they are paid for autopsy work:

- 86% of those responding are paid directly by the Coroner
- the majority of these have non-NHS time in their job plan and reported 'time-shifting' anything from 50–100% of the time taken to perform autopsies
- 13% are paid as part of their NHS programmed activities (PAs) or university contract via an service level agreement between the Coroner and their employer
- two respondents stated that the fees for their autopsies go to their employing NHS trust or university.

With respect to training:

- 79% supervise trainees undertaking Coroner's autopsies
- the majority of those who don't simply have no trainees
- five respondents cited lack of time and NHS work pressures as the reasons for not supervising trainees.

In terms of future intentions:

- 26% intend to give up Coroner's autopsy work in the near future
- a quarter of those answered the subsequent question as to why – see Table 2.

When asked if their hospital department or public mortuary had struggled to provide a service in this context, 52% answered in the affirmative. The measures taken to bolster the service are shown in Table 3.

Of the 29% of consultants who do not undertake Coroner's autopsies, 92% had done at some time in the past. Their reasons for giving up are shown in Table 4.

Of the 27% of consultants who had given up autopsy work having previously undertaken it, we asked whether anything would prompt them to consider restarting. Responses are shown in Table 5.

We asked consultants who had given up whether they would restart autopsies if they were included in and paid for by NHS PAs, either within current PAs or as additional PAs. Over 80% of respondents said they would answer 'no' to either question.

Trainees

- 70% of all trainees continued with autopsy training in stages C and D
- 33% of these did the old-style autopsy exam
- 25% have passed the certificate of higher autopsy training (CHAT)
- a further 30% intend to sit the CHAT before taking a consultant post.

89% of trainees undertaking higher autopsy training intend to undertake Coroner's autopsies in a consultant post, if required.

Four trainees who are autopsy-trained gave information about why they do not intend to practice as a consultant. One decided to focus on molecular pathology, stating that there wasn't time to do everything. A second stated that NHS workload pressure meant that autopsies couldn't be done to a high enough standard. A third is in Scotland, and a fourth blamed poor remuneration and a lack of interest in the subject.

The main reasons given for not continuing in higher autopsy training were personal preference and the poor quality of autopsy training in their region.

55% of those who did not train said that they would consider undertaking the CHAT later in their career.

When asked what might persuade trainees to undertake autopsy work, the most popular answer was increased remuneration.

Conclusions and commentary

The survey gave some unexpected and very interesting results. The proportion of consultants un-

Table 1: The number of autopsies per year being undertaken by respondents

Number of autopsies	% respondents
<100	43
100–199	35
>200	23

Table 2: Consultants' reasons for intending to give up Coroner's autopsy work

Why give up?	%
Poor remuneration	62
NHS workload pressures	42
Retirement	30
Falling standards	6
Risk to professional reputation	4

Table 3: Measures taken to bolster the service

Measures taken	Frequency (%)
Employing outside pathologists, either on site or by transferring bodies to other mortuaries	52
Consolidated rotas (amalgamated sites, reduced number of days' service)	18
Increased fees	14
Shifting autopsy work into NHS PAs	1
No action taken, in spite of warnings given	32

dertaking autopsies for example was unexpectedly high compared to previous estimates of less than 50%. However, the respondents are likely to be a self-selecting population; if you don't do autopsies, you are less likely to be interested enough to take the survey.

It is clear that whilst the introduction of optional higher autopsy training will not help to increase the overall number of trained autopsy pathologists, established consultants giving up is a much larger problem. The survey supports anecdotal evidence from regional training leads via Annual Review of Competence Progression (ARCP) panels that around two-thirds to three-quarters of trainees continue to undertake higher autopsy training and that around 65% of trainees overall intend to undertake Coroner's autopsies as consultants.

The reasons given by consultants who had either given up autopsies or were considering giving up were no great surprise; poor remuneration, lack of time and NHS workload pressure, the impact of the Human Tissue Act on their ability to examine tissues or retain organs and impending retirement are all issues that have been raised in previous communications.

Of greater concern were suggestions that the quality of the work of Coroners' officers was falling, and that poor-quality police investigation placed pathologists in compromising positions that threatened their professional reputation. The survey prompted several respondents to send the author emails outside of the survey that detailed cases of bullying behavior by police who had inadequately investigated suspicious deaths and who subsequently tried to accuse the pathologist of negligence or unprofessional behaviour when the true circumstances came to light. In addition, there is anecdotal evidence that GPs allegedly feel increasingly bullied by Coroners and their officers to provide causes of death in cases where they have little or no information about the last days or weeks of a person's life.

The proportion of departments struggling to provide the service is also greater than expected, but more worrying is the number that have failed to address the problem in any way. Combine that with the proportion of pathologists who have either given up autopsy practice or who intend to in the near future and one comes to appreciate that this is an already hard-pressed service on the edge of a complete meltdown.

The Hutton *Review of forensic pathology in England and Wales* was completed in March 2015,[2] but was embargoed during the general election. It is likely to be officially published soon, but the author has seen a copy of the report that has been submitted to the Minister of State for Crime Prevention. The review was extended to include the Coronial pathology service. Its main conclusion is that, although the forensic service is functioning satisfactorily at present, the future for forensic and non-forensic pathology services is "fragile, and corrective action needs to be taken now".

High-quality death certification is essential for the development of effective healthcare policies. If you don't know for sure why patients are dying, how can you hope to properly plan and manage healthcare systems for the living? Hutton supports this view in the covering letter to his review. He states "It is for the Government to take its own view on this issue after considering my report. If, as I hope they would, they decide that recording accurate death causation (with the proper certification) is indeed an important metric for the public interest, then action needs to be taken in the immediate future."

This College has previously communicated its concerns about the Coronial autopsy service to the Ministry of Justice, the Department of Health and other relevant parties, but no action has been taken to date. A concerted strategy of political and public engagement is necessary to communicate the need for urgent action to prevent a complete collapse of the service, with all the associated problems for relatives and the public in general.

Dr David M Bailey
Consultant Histopathologist

Table 4: Reasons for giving up undertaking Coroner's autopsies

Reasons for giving up	%
NHS workload pressures	50
Poor remuneration	24
HTA standards, difficulty in obtaining histology and/or organ retention	11
Service no longer required (either after moving posts or service reconfiguration)	11
Health issues	3

Table 5: Reasons that may prompt consultants to consider restarting autopsy work

What would encourage you to restart?	%
Nothing	52
Increased fees	23
Adequate protected time in job plan	11
Introduction of medical examiners	5
Relaxed rules around tissue sampling	5

References

1. Ministry of Justice. *Coroners Statistics 2013 England and Wales*, 2014.
2. Hutton P. *A review of forensic pathology in England and Wales*, submitted to the Minister of State for Crime Prevention March 2015.

Carla Deakin

Valuing laboratory medicine in healthcare

Getting on the same page

With the Accelerated Access Review currently looking at how to speed up the availability of innovative medical technologies, there is a real and heightened focus from Government and NHS England on how medical devices and diagnostics can play a more significant role in transforming healthcare delivery. Earlier this year, members of The Royal College of Pathologists (RCPath), the Association for Clinical Biochemistry and Laboratory Medicine (ACB) and the Institute of Biomedical Science (IBMS) took part in workshop at the National Institute for Health and Care Excellence (NICE), exploring the potential for laboratory medicine professionals and the NICE Diagnostics Assessment Programme (DAP) working collaboratively in identifying diagnostic tests and technologies which could positively impact patient care and healthcare delivery.

During the workshop, chaired by Dr Suzy Lishman (RCPath President) and Professor Adrian Newland (Chair of NICE's Diagnostics Advisory Committee [DAC]), participants heard about the laboratory diagnostics landscape, NICE and the DAP, and the RCPath's Clinical Effectiveness programme. It also explored how participants could help ensure that NICE is aware of innovative and valuable diagnostic tests.

Measuring the value of diagnostic tests for the NHS

'Value' is a frequently used word that is often challenging to define and measure, as it depends on many factors. These include the often-differing perspectives of the parties involved, the measurement techniques used and the 'currency', i.e. the unit of the measure. For diagnostics tests and technologies, DAP provides a solution to this challenge.

DAP produces guidance clearly defining the impact on the diagnostic/care pathway, patients and the healthcare system, in terms of cost per quality adjusted life-year (QALY), of selected diagnostic tests and technologies. In formulating its recommendations, the DAC – an independent group composed of clinicians, healthcare scientists, health economists, healthcare managers, lay and commercial members – considers information generated via a systematic review of evidence on the technology's clinical and cost-effectiveness. DAC decides whether a product should be recommended for use and, in the case of a recommendation for further research to inform any future decision regarding its routine use in the NHS, what that research should seek to achieve. Using the QALY, which combines quality of life with life expectancy, means that a new test or technology can be compared 'like for like' with other healthcare interventions, allowing an understanding of the opportunity cost associated with its use in the healthcare system.

In addition to the diagnostics guidance produced by DAP, NICE also produces tools to support the adoption of recommended technologies. This includes specific adoption-support guides, bringing together the experiences of those in the NHS who have been early pioneers of the technology, and costing tools, which help clarify the potential areas of budget impact and opportunities to support a technology's introduction relating to tariff/financial systems.

Selecting topics for the NICE DAP

The NICE DAP, along with the Medical Technologies Evaluation Programme (MTEP), which evaluates medical devices, was set up in 2010 in response to the challenges associated with the adoption of innovative technologies into the NHS. Unlike other NICE programmes, where decisions on which drugs or processes should be selected for evaluation are identified in conjunction with the Department of Health, companies producing diagnostics and devices are able to notify NICE directly of their product and its associated value proposition though a notification process. All product notifications are reviewed 'in camera' by the Medical Technologies Advisory Committee (MTAC) – an independent group again composed of clinicians, healthcare scientists, health economists, healthcare managers, lay and commercial members. MTAC's role is to select and route for evaluation to the most appropriate NICE programme those products which, in its view, offer potential value to the NHS.

As well as evaluating products notified by companies, DAP has also produced guidance on a number of products that were notified to NICE by clinical colleagues. For these topics, clinicians made DAP aware of diagnostic tests that they felt could significantly impact diagnostic and healthcare practice. The products identified were then presented to MTAC and selected for guidance production. 'DG 15: Myocardial infarction (acute): Early rule out using high-sensitivity troponin tests (Elecsys Troponin T high-sensitive, ARCHITECT STAT High Sensitive Troponin-I and AccuTnI+3 assays)' is a recent example of guidance resulting from a clinical notification.

Details of both published diagnostics guidance and guidance currently in development can be found at www.nice.org.uk/guidance/published?type=dg

A unique perspective

A key aspect of the joint workshop was the focus on the unique perspective of laboratory medicine professionals when it comes to identifying new, innovative and clinically impactful diagnostic tests and technologies. With diagnosis being a key aspect of all that laboratory medicine does, professionals are often the pivotal link between the product, the company and clinical colleagues who will use the clinical information provided by products for the benefit of patients and the healthcare system.

This led to much discussion on how laboratory medicine professionals could become actively involved in making NICE aware of promising tests and technologies. A central tenet of this process is the ability to define the value proposition presented by the test or technology. Participants spent time in groups thinking about the approach to identifying value propositions and their key importance to framing the decision question that the guidance would answer. Figure 1 highlights the key points discussed.

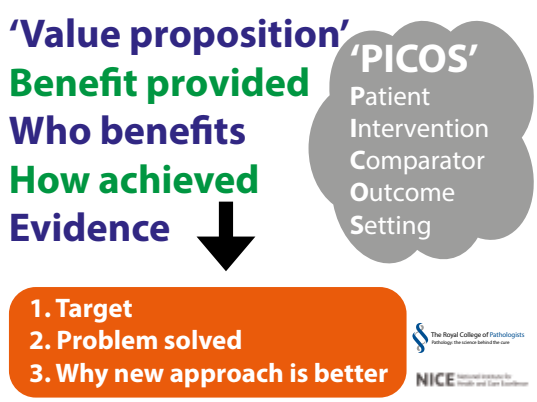


Figure 1: Understanding the value proposition

Getting involved

In closing the workshop, Dr Lishman acknowledged the unique perspective of all laboratory medicine professionals when it comes to identifying innovative and clinically relevant diagnostic tests and technologies and the compelling opportunity to underline the value of laboratory medicine to patient care and healthcare delivery.

The ability to provide insight into which tests and technologies can provide real value is not confined to a few individuals. If there is a diagnostic test or technology that you feel NICE should be considering for evaluation, or if you just want to know more about the process, please contact DAP directly on diagnostics@nice.org.uk.

Be assured that any preparation involved in getting your suggestion ready for submission to MTAC for selection and routing will be dealt with by DAP. So please take the opportunity to help get new, innovative and clinically impactful diagnostics into routine use in the NHS and show the value that laboratory medicine brings to patients and the healthcare system.

Carla Deakin
Associate Director
NICE Diagnostics Assessment Programme

Dr Jane Starczynski

Alice in Wonderland... influencing the future of leadership

This article is Part 1 of a leadership journey, first presented by at the 'Influencing the future' leadership course four years ago. Part 2, 'Leadership in Action', was presented at Kettering in September 2014 and will be published in a future issue of The *Bulletin*. Its originality impressed the College's Clinical Effectiveness team, who are developing and publishing a wide range of quality-improvement methodologies.

Alice was sitting at the microscope. She'd lost all track of time and hadn't realised it was way past home-time. She opened the door and peered outside, instantly realising she'd been locked in the building again. She switched off the microscope, locked the laboratory doors and started down the corridor. Suddenly, out of the corner of her eye, she saw a movement. She spun around but whatever was there had gone. As she turned the corner towards the main laboratory, there, at the end of the corridor, she saw it... a white rabbit in a lab coat with a timer firmly clutched to its chest. She blinked in disbelief, and when she opened her eyes it was gone!

Alice ran down the corridor to try and catch another glimpse of the rabbit. She turned another corner and saw it disappear down the stairwell. Alice, now in full stride, ran towards the

stairs and threw open the doors. But the stairs that normally provided safe passage out of the building were no longer there and Alice found herself falling in the darkness through a giant rabbit hole.

As she fell, her mind whirled with all thoughts from the day. Had she reported enough cases? Where was she going to find the funding to do the latest research study? Why didn't the manager respond to her emails? Alice hit the ground with a THUD and then all went black...

As she opened her eyes, Alice found herself in a strange, dimly lit room. Her eyes slowly focussed in the gloom and she noticed a very small door in the corner of the room. There was no way she would be able to fit through it. In the middle of the room, stood a small table. There she found a key and a bottle of bright blue liquid, attached to the bottle was a label saying "Drink me". In opposition to everything Alice had ever been taught, she decided to take a gamble. She took the key in one hand, then lifted the bottle to her lips and took a gulp. Alice felt very strange, everything around her seemed to be getting larger, but wait... the room wasn't getting larger, she was actually getting smaller. Then Alice realised she was at the height of the door, so she took a deep breath, put the key in the lock and gave it a twist. The door creaked open. By being prepared to change herself, Alice had been able to open doors.

Alice pushed open the door and tentatively stepped through. She entered a magical world full of strange creatures she had never seen before. There at the front were Tweedledum and Tweedledee, talking in riddles and rhymes. Alice didn't really know what to make of them, but as she listened carefully she began to understand their strange language. They took Alice by the hand and led her through the gardens, and there sat on a toadstool was a caterpillar. She came to know him as Absolem. As he looked up from his hookah, she thought to herself how very old and very wise he looked. "

Who are you?" Absolem asked.

"I'm Alice" she replied.

"Are you *the* Alice?"

Alice didn't really know what he meant. He seemed to know she was coming and that she might have something to offer, but she didn't really understand.

Alice continued through the garden and learned more about this strange new world from Tweedledum and Tweedledee. This information was the tools that would help her on her journey. She made new friends along the way: the magical White Rabbit who had first drawn her into Wonderland and taught her how to better manage her time; the Cheshire Cat was always there with his great big grin to chat and listen to Alice's ideas. She often thought he was just passing the time of day, but came to realise he was just helping her to sharpen her saw...

And then there was the Mad Hatter. He was different; a little eccentric but prepared to do things differently, to take a risk. Alice liked him and his new way of thinking. He would be able to teach her to do things differently, to make things happen for the better, even if they seemed disruptive to start with. In turn, the Mad Hatter introduced her to the White Queen, who took Alice under her wing and helped her to understand more about herself; to realise who she was and what she was capable of. With all of these new friends around her, Alice began to like Wonderland and realised that she too was important and what she could achieve.

There was someone else there in Wonderland Alice had heard mention of: The Queen of Hearts. Alice thought she sounded 'nice!', but was soon to realise this was not the case.

From her time in Wonderland, Alice had gained confidence; so much so that she was prepared to try and make changes. Why did they have to paint the roses red in the Queen's garden when they could use new molecular techniques to make the roses grow red? Alice went to the Queen with her idea.

"Off with her head!", the Queen yelled. She clearly didn't like Alice's new ideas. The Queen showed no emotional intelligence and Alice fled sobbing in to the gardens.

There in the distance she could see the smoke rings rising and realised that Absolem was there. She ran to meet him.

"Why doesn't the queen take me seriously?", she asked.

Absolem offered to help Alice. He was, after all, very, very wise and with his help her circle of influence grew and grew, and with this so did her confidence. With the support of Absolem and her other new friends, Alice decided she would do battle with the Queen.

She strode into the Royal Palace and demanded an audience. This time she would do things differently. The Queen would think it was *her* idea and Alice would help her to realise that this change would make better use of her resources, a win-win situation. The Queen came around to Alice's way of thinking and planned to make the change as soon as possible... but, like everything in Wonderland, Alice would believe it when it actually happened.

And what of the future? Alice still has one last battle. She has to battle the Jabberwocky, her nemesis, her own demon... But that's a tale for another day.

To be continued...

Dr Jane Starczynski
Department of Cellular Pathology
Birmingham Heartlands Hospital

We welcome your letters. Please mark correspondence for the attention of the Editor of *The Bulletin*, and email it care of the Publications Department at **publications@rcpath.org.** The deadline for the October 2015 issue is **7 August 2015.**

CPD online

Dear Editor

Thank you to Dr Barr for expressing so clearly some of the arguments against compulsory uploading of CPD 'evidence'.

This, combined with the article in the same edition from Andrew Boon about the paperless portfolio, makes it clear to me that the College is unlikely to listen to those of us on this side of the fence.

The debate over whether CPD evidence should be compulsorily uploaded falls into three main areas.

1. The role of inspection in demonstration of professional integrity. As an appraiser, I have been taught that my colleagues' declarations are to be taken on trust. I am not supposed to investigate what they have or have not done, but rather discuss with them the content of their appraisal folder, i.e. if they say they went to a GI conference, I am supposed to believe them and discuss whether it was useful and relevant to their practice. Similarly, if they tell me they are healthy, I do not need a letter from their GP. Clearly the Trust has some information that I am meant to absorb and notice any discrepancies, but I am not some police inspector suspecting a miscreant of wrongdoing.
2. The role of the College. There is no requirement for appraisees to present their CPD via a royal college system. This is useful if it makes things simpler and if it helps the appraiser to understand what may be best practice in a specialty. But appraisees may submit their CPD directly into their appraisal portfolio, and will do so if the College system becomes impractical.
3. Practicality. This is the one that afficionados of the paperless systems concentrate on, but in many senses it is the least important, not being a point of principle. Not only do our IT skills vary markedly, but so does our access to equipment. In my department, we do not have a scanner. 'Ah yes', I am told. 'Take a photo of the certificate or register' (many of which are only available as paper or in a book). Not everyone has a modern phone. But for those great numbers of us who do, you may find that it is almost impossible to get pictures from the phone onto the ancient desktop at work due to antiquated software in the NHS. And maybe I could do it at home, but I do know pathologists who do not have computers at home, and I do not think it would be appropriate for a compulsory RCPath edict to be only available by using your home technology.

I think it is time to refocus our thoughts on what the appraisal portfolio is for. I thought it was for us to demonstrate our development and learning, allowing us to reflect upon our practice, and that our royal colleges might provide us with a format which is easy to use and flexible allowing us to do this. Compulsory paperless evidence is not going to assist this.

Gemma Stockford
Consultant Pathologist

Response from Dr Andrew Boon

Dear Gemma

Thank you for your letter relating to the online CPD scheme and in particular the selective QA review process.

I have fully outlined the reasons why the College has made changes to the CPD scheme in my previous *Bulletin* articles. It would be tedious to go through these in detail. However, it might be helpful to address the specific issues you have highlighted.

The CPD scheme QA process is precisely as its title suggests. It provides an assurance to all parties that the scheme is operating in accordance with the principles to which every participant has implicitly agreed. That is, allocation of appropriate credits for legitimate CPD activities, backed up by evidence that such activities have occurred. It is not aimed at intrusively investigating individuals and is certainly not intended to call into question their professional integrity. However, inspection of any scheme necessitates scrutiny of evidence provided by individuals. That is inescapable. All scheme participants are fully aware that a proportionate survey will occur. It can be inconvenient and sometimes irritating, but most accept it is a worthwhile price to pay if the College can thereby demonstrate the scheme is operating as intended. It is something in which we should all take pride.

Revalidation appraisal processes expect participation in a CPD scheme. It does not have to be the RCPath scheme. Others are acceptable, but one would hope that College members would support the College scheme (which is free for Fellows), rather than paying a third party for participation in a similar scheme. If individuals are submitting CPD evidence outside a properly constituted scheme, then their appraisers really should check with their responsible officers (ROs) whether this is acceptable to the GMC. They may well find out that it is not.

No special IT skills are required to use the online portfolio. I would be astounded if anyone found the system more complicated than an average laboratory reporting system. It is certainly much simpler than most NHS trusts appraisal systems. I accept that many Trust computers are ante-diluvian, but scanning a few A4 pdf files does not require esoteric equipment. If there is a Pathology Directorate in the UK that does not have this facility, I would be interested to hear about it – and so, probably, would UKAS. My experience is that the majority of CPD certificates and evidence of CPD activities are now received as pdf or Word files in the first place. Printing can usually be avoided altogether.

Finally, it is absolutely the case that the crucial function of a CPD scheme is to demonstrate learning, enable reflective practice and encourage continuous quality improvement. The online portfolio has been developed to facilitate this. It's not perfect, however we are dependent on feedback and we welcome constructive proposals for improvements. But I fear that a return to a paper-based portfolio is no longer a viable option.

Andrew Boon
Director of Professional Standards

Audit report: 16s PCR turnaround time at Addenbrooke's Hospital

The College's Clinical Effectiveness Department wishes to encourage high-quality clinical audit. We therefore periodically publish interesting examples of audits that have been successfully evaluated through our clinical audit certification scheme.

Introduction

Since 2004 the Microbiology Department at Cambridge University Hospital (CUH) has sent samples for 16s PCR processing to the Great Ormond Street Hospital (GOSH) molecular service when there is a high suspicion of infection and routine bacterial cultures are negative. This is usually because organisms are fastidious, difficult to culture or prior antibiotics use has reduced the sensitivity of culture.

Previous evaluations (two poster publications: ICAAC, ECCMID) of this service have demonstrated its clinical usefulness. An introduction of selection criteria following the first evaluation led to an increase in the yield of positive results.

Final results are now sent electronically using an nhs.net address and this has led to a laboratory report receipt on the day of final result validation at GOSH.

The aim of this audit was to review operational issues related to the current service including turnaround times (TAT) in order to make an informed judgement regarding future decisions relating to use of this service.

Objectives

To ensure that 16S PCR service provided by GOSH is in line with the TAT published in the service handbook in order to enable timely decisions to be taken regarding patient management.

Sample

All consecutive samples sent to GOSH for 16s PCR during a three-month period1 July and 30 September 2014.

Exclusions

None.

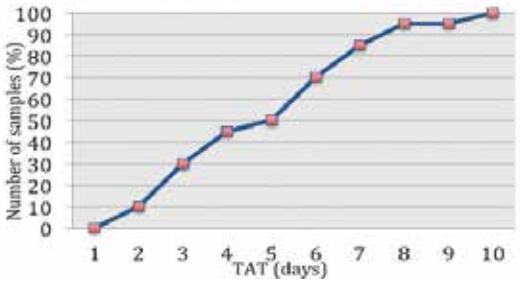


Figure 1: 16s PCR TAT: time from CUH send date to GOSH report date

Method

GOSH molecular service provided their handbook with its repertoire of tests and TAT (see Figure 2).

All consecutive samples sent to GOSH between 1 July and 30 September 2014 were identified from the laboratory computer system. The sample numbers were sent to GOSH and dates of sample receipt at GOSH were supplied.

The following data were collected, including definitions used.

1) CUH send date: the date when the sample was sent to GOSH from CUH; this was recorded on the laboratory computer system.
2) GOSH sample receipt date: the date when the sample was received by GOSH and recorded on their system; this date was provided by Kathryn Harris of GOSH.
3) GOSH report date: the date the result was reported and sent via the nhs.net e-mail; this was accessed on the email system and corresponded to the date on the report.

The TAT was calculated as the number of days from GOSH sample receipt date to sample report date. The TAT was reported including and excluding weekends days, because GOSH do not provide a weekend service.

Standards

100% of tests sent for broad-range 16s PCR (bacteria) are within the service provider's TAT of 48 hours – 7 days.

Results

1) Total number of tests sent was 20 and four of 20 samples were PCR positive (20%). Number of tests per month were:
- July: 11
- August: 2
- September: 7.

2) Compliance with the standard:
- 100% of samples were tested within the published TAT excluding weekend days
- compliance was 95% (19 out of 20 samples) if weekend days were included in the TAT calculation.

3) Turnaround times:
- mean TAT was 3.95 days including weekends (range 1–9 days)

Figure 2: From the GOSH handbook

Molecular Microbiology Service at GOSH	
Assays available	
Assay	**Turnaround time**
Broad-range 16S rDNA PCR (Bacteria)	48 hours – 7 days
Broad-range fungal PCR	48 hours – 7 days
Streptococcus pneumoniae real-time PCR	24 hours
Neisseria meningitidis real-time PCR	24 hours
Staphylococcus aureus real-time PCR	24 hours
Streptococcus pyogenes real-time PCR	24 hours
Streptococcus agalactiae real-time PCR	24 hours
Kingella kingae real-time PCR	24 hours
Mycobacterium tuberculosis real-time PCR	24 hours
Mycobacterium species real-time PCR	24 hours
Tropheryma whipplei real-time PCR	24 hours

- mean TAT was 2.5 days excluding weekends (range 1–7 days)
- 15 specimens or 75% were within a three day TAT (excluding weekends)
- mean TAT from CUH send date to GOSH report date was 5.2 (range 2–10 days) including weekends (Figure 1).
4) Samples with a TAT of >5 days (including weekends) were observed within a two-week period 22/07/14–01/08/14, due to annual leave of the report authoriser.

Conclusions

GOSH delivers its service within their published standards (TAT 48 hours – 7 working days).

75% samples had a TAT of ≤3 working days.

Recommendations

This audit will be presented to the Bacteriology Technical Committee of CUH and the results should inform discussions regarding provision of this service.

References

GOS user handbook.

Dr Olly Allen
Dr Jumoke Sule
Cambridge University Hospitals NHSFT

Dr John Hartley
Dr Kathryn Harris
Great Ormond Street Hospital

Dr Mathew A Diggle

A3 thinking for problem solving – Review of the 'flow' in urines

What is an A3? Simply described, an A3 document comprises of a single piece of paper which is A3 in size (although other sizes can be used). The A3 document forms a template and a record for problem solving. It can be hand drawn or computer generated. In general, the 'flow' of the A3 starts at the top left and works down the left-hand column, followed by navigation from top to bottom down the right-hand column. The left column can be described as '*the way things happen now*' and the right column as '*the better way to work*'.

The rationale behind the A3 problem-solving format is to create a quick and common understanding of the current condition. It is a visual way of displaying and highlighting a set of circumstances that complicate a current work flow and directly associating the proposed solutions. This format has the advantage of being used by either groups of individuals within or out with a specialty or by a single worker.

Beginning with a consensus on the problem or issue you are trying to solve is of crucial importance and it is worth spending time discussing and identifying the 'true' problem statement. From this, describing the entire associated process or processes requires accurate information. Only information of relevance to the problem should be included and will not only be efficient but will ensure that those involved have a good understanding of the current and future states. Moreover, this format prevents having to provide large reports, supports effective communication and reduces misinterpretations and thus incorrect conclusions.

Eventually, a completed A3 represents an improvement process that is transparent and inclusive so that each staff member knows when a process is working well and can immediately identity when the 'ideal' doesn't happen. Ultimately, a successful measure of any A3 is acknowledging that your future state has become your new current state.

Dr Mathew A Diggle
Clinical Lead for Molecular Diagnostics
empath Pathology Services
Nottingham University Hospitals NHS Trust

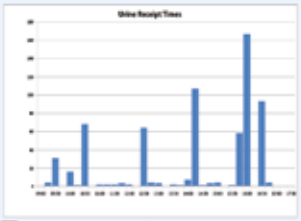
Acknowledgements

I would like to acknowledge and thank the rest of the improvement team and the entire Microbiology Department staff without whom supporting and sustaining improvement would not be possible.

A3 Lean Improvement

Define the problem/ opportunity: (Why are you talking about it? What are you trying to solve/ improve?)
For negative urine specimens there is a high variation in both workload and in turnaround times (TAT)

Current state: (What happens now? Be visual – value stream map, graphs, facts and measurements etc.)



Two separate processes:

Sample:	Receipt →	process →	validation →	authorisation
Card:	Receipt →	registration →	scan →	demo check

Mean receipt to authorisation: PCT: 7.3h IP: 3h

- 2 x UF100; batches of 10 every 820 seconds
- 9:30-5:00 = 7.5 hours = 27000 seconds / 540 second cycle times = 50 batches = 1000 sample capacity

Not in control of all transport: potential Pathology-wide Lean project required.

Goal: (State the specific target(s). State in measurable or identifiable terms)
To achieve 100% TAT for all negative urines from all patients within 24h and from in-patients within 3h.
N.B. feedback from VOC/VOE

Waste identified: (Transport, Inventory, Motion, Automation, Waiting, Over-production, Over-processing, Defects, Skills.)

- Transport – Deliveries (high batch numbers). Not in control of all transport, central reception at City campus and QMC (autocore) i.e. not Microbiology
- Inventory – Cards, registration and demo-checking
- Motion: Cards, reception, scanner, registration
- Automation: Creation of 'bottle neck' at peak times. Issues with interface.
- Waiting – registration affects validation, demo-checking affects authorisation, some GP samples stored overnight
- Over processing – demo-check, sample sorting, UF100 tube labelling, inappropriate samples
- Over production – UF100 tubes
- Defects – processing before registration, pre-labelled UF100 tubes and manual microscopy, reject samples
- Skills –definition of roles

Root Cause Analysis: (What is the root cause of the problem? Use fishbone/ cause and effect diagram, five why analysis)

Materials – peaks in deliveries (10.30am, 2pm and 4pm); *c.*50% samples in last 2 h; transport (GP deliveries once a day)
Spaghetti map – people, card, sample
Methods – sample and card go on separate routes; GP & hospital samples not separate until 4pm, sample process prioritised over card processing, interface not suitable for ideal process. Model method around interface, repeat sorting
People – increase volume of stress in pm, demo/ registration left as is a horrible job (large batches), repeat sorting
Machines – 660 samples in 7.5 h; 2 separate interfaces; sited due to air conditioning
Environment – layout of card route poor compared to sample route; registration and scanner separate from the lab process

Department: Clinical Microbiology	**Date: 29/11/11**	**Author: Core team**
Team members: Core team	**Agreed by: Core team**	**Version: 1**

Future state: (What will it look like? Be visual – future state value stream map)
Single step process:
Receipt → un-bag, check, label → register/ demo check → process → validate/ authorise

- Another updated VSM
- Eliminate wastes (e.g. repeat sample sorting, delays due to registration & demo checking)
- Single sort of urines specimens in Micro reception
- 2 x work streams GP vs. IP (separate UF100/ lab nos.?).
- Takt time governed by speed of UF100 analysis
- Registration in urine lab next to processing. Cards and specimens processed in tandem.

Action Plan:

Action – what, why and how?	Who?	When?	Progress status (ie competed, in progress)
Communication: daily huddles, suggestion boards etc	All	Jul 11	Ongoing
Transport: understand/measure high volume user process in sending samples	PCT/B3	Nov 11	In progress
Reception: map, 2x urine boxes, sample sorting/layout	Lab staff/ MLA's	Oct 11	In progress
5S of urines bench: streamline/ organise	Core/ lab	Nov 11	In progress
Test and feedback of future state model	Core/ lab	Sep 11	In progress
Demo checking: discuss removal for urines	Core/ OMG	Sep 11	In progress
"Stale" samples: confirm correct procedure	OMG/ SMT	Sep 11	In progress
Urines lab: over-production of UF100 tubes	Lab staff	Nov 11	In progress
Urines: Card & specimen processed in tandem	Lab staff	Nov 11	In progress
Training for all staff implemented & being sustained	Core/ lab		Ongoing

Results and measures: (What was you PDSA cycle? How long did you run it for? What data did you collect before and after the change? What did you find? Add charts, tables, and cost benefit analysis)

- Separate GP and hospital data
- Add data from VSM

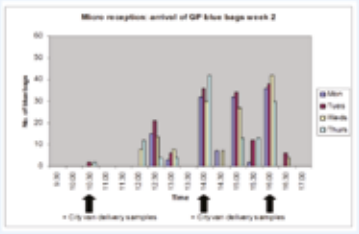
Next steps: (Are there any remaining issues/ problems? Is there any further follow up required?)

- Improvement of transport and IT
- Funding

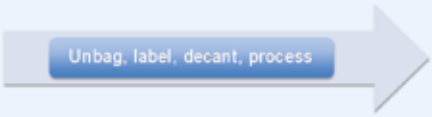
A3 Lean Improvement

Define the problem/ opportunity: (Why are you talking about it? What are you trying to solve/ improve?)
Are we maintaining an improvement for negative urine specimens compared to the parameters achieved in the "original" state?

Current state: (What happens now? Be visual – value stream map, graphs, facts and measurements etc.)



- Visual management and user engagement through VOC and VOE are in place
- Still not in control of all transport: potential Pathology-wide Lean project required.
- One piece flow with registration in the lab (smaller batches)



- Wastes removed, no pre-labelling tubes
- Emphasis of "right first time"
- Saving *c.* 220h/annum of SBMS time
- Inpatient samples prioritised throughout the day

Goal: (State the specific target(s). State in measurable or identifiable terms)
Have we achieved 100% TAT for all negative urines from all patients within 24h and from in-patients within 3h.

Waste identified: (Transport, Inventory, Motion, Automation, Waiting, Over-production, Over-processing, Defects, Skills.)

- Transport – Deliveries (high batch numbers). Continue to be outside our circle of influence. Not in control of all transport, central reception at City campus and QMC (autocore) i.e. not Microbiology
- Automation: Dependent on deliveries. Creation of 'bottle neck' at peak times. Issues with interface.
- Over processing – Continue to receive inappropriate samples
- Defects – Mainly inappropriate samples
- Skills –definition of roles at a time of significant change in the workforce

Root Cause Analysis: (What is the root cause of the problem? Use fishbone/ cause and effect diagram, five why analysis)

Materials – Continue to have peaks in deliveries (10.30am, 2pm and 4pm); *c.*50% samples in last 2 h; transport (GP deliveries once a day)
Spaghetti map – Sample from GP to lab
People – Better communication and education of users (both hospital and GPs)
Machines – 8hr day = 540 samples with 2 machines = 1080 samples per day
Environment – layout of card route poor compared to sample route; registration and scanner separate from the lab process

Department: Clinical Microbiology	Date: 01/05/15	Author: Core team
Team members: Core team	Agreed by: Core team	Version: 1

Future state: (What will it look like? Be visual – future state value stream map)
Single step process:

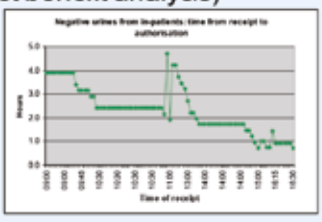
Receipt → un-bag, check, label → Electronic scan → process → validate/ authorise

- Create regular updated VSMs (scheduled per annum)
- Greater influence over transport of samples into laboratory
- Continue to reduce errors from users (both specimen forms and samples/types)
- Engage with users on 24/7 working
- 100% uptake of electronic requesting (ICE) from GPs

Action Plan:

Action – what, why and how?	Who?	When?	Progress status (ie competed, in progress)
Communication: daily huddles, suggestion boards etc	All	Daily/Monthly	Ongoing
Transport: understand/measure high volume user process in sending samples	Core/IT, OMG/GPs	Monthly	In progress
Test and feedback of future state model	Core/ lab/OMG	Annual	Complete
Communication and Education of users	Core/ OMG	Annual	In progress
Review current service hours	OMG/ CMT	Dec 15	In progress
Training for all staff implemented & being sustained	Core/ lab	Monthly	Ongoing

Results and measures: (What was you PDSA cycle? How long did you run it for? What data did you collect before and after the change? What did you find? Add charts, tables, and cost benefit analysis)



- 11% increase in samples tested
- Most GP specimens' turnaround time (TAT) < 4h (median=1.7h). Overnight storage results in TAT c. 20h - **i.e. median TAT reduced by 45% (mean TAT reduced by 29%)**
- Majority of in-patient specimens' TAT<3h (median=2.4h) **- i.e. median TAT reduced by 23% (mean TAT reduced by 23%)**
- VOE – ""*We seem to process more specimens*", ""*It's much less stressful now in Urines*", "*I don't go home feeling frazzled*!" and "*I didn't think it would work, but it does*!"

Next steps: (Are there any remaining issues/ problems? Is there any further follow up required?)

- Continual improvement of transport and IT
- Identify savings and clarify routes for re-investment in Service

The results of three surveys (local, regional and national) of blood culture practice

Dr Tom Lewis

Mr Ian Sturgess

Dr Jay Kavi

Dr Michael Weinbren

Blood cultures are an important investigation in managing patients with established or suspected infection. Results of significant positive cultures help establish site of infection and allow optimisation of antibiotic therapy, as well as providing epidemiological/infection control information. Negative blood cultures viewed in conjunction with the clinical condition of the patient may permit early cessation of antibiotic therapy.

We report three surveys that look at blood culture practices: one undertaken in a teaching hospital, the second regionally and the third a national survey.

Teaching hospital survey

University Hospitals Coventry and Warwickshire (UHCW) NHS teaching hospital has an on-site microbiology laboratory that also services two nearby acute district general hospitals (with no on-site microbiology services). The laboratory has a centralised reception sited in the blood sciences laboratory. Microbiology specimens are received within the reception area and then taken to the microbiology laboratory, which is located less than 30 metres away along the same corridor. Blood cultures received outside of normal laboratory working hours are left at room temperature overnight in reception.

The surveys focused on load and unload delays of positive blood cultures on the UHCW site. An initial quick survey was performed to ascertain whether processing times were satisfactory. Due to concerns raised, a further two surveys followed.

Survey 1

In the first survey, 24 positive blood cultures were selected at random. Four data points were obtained, allowing two delay points to be determined: loading delay (time from receipt to placement on blood culture machine) and unloading delay (time from blood culture flagging positive to removal).

We found that the load delay ranged from 40 minutes to 20 hours. Poorest performance was at weekends and when the lab was closed in the evenings. This was to be expected, as out of routine hours blood cultures are left in the centralised reception overnight. During normal working hours, the average load time was two hours (range: 40 minutes to 4 hours) to travel a distance of 30 m. The unload delay averaged five hours (range: 3 minutes to 14 hours). During the working day, the delay was less than an hour and – as expected – it was greatest outside of routine working hours.

Survey 2

After the first survey, training was undertaken within the microbiology department to try to improve the awareness of the importance of loading blood cultures. Data points were then determined for a much larger number of blood culture sets (191): time from collection to receipt in pathology (using either times recorded on the 'e' requesting system or written on request form) and time from receipt to loading.

The results verified the concerns raised by the initial survey (see Figure 1). Findings showed that there was little delay between collection of blood cultures and receipt within the laboratory on the university hospital site throughout the day, with most blood cultures being collected between the hours of 8 am and midnight. The overwhelming part of the load delay occurred after arrival in specimen reception. Although some improvement had occurred during normal working hours, there were still a significant burden of blood cultures not being loaded within two hours of receipt.

Survey 3

We then trained blood science staff, who work a 24-hour shift in specimen reception, to load blood cultures outside of the routine microbiology working hours. Blood cultures were loaded as batches at 8 pm, midnight and 4 am. Following training and implementation of the process, the third survey looked at the load delay for 566 blood cultures sets using the data points previously described (Figure 1). Before the intervention, it took over 11 hours for more than 90% of blood cultures to be loaded. This fell to 5 hours after involvement of blood science staff during the 'out-of-hours' period. Nevertheless, there remained a substantial delay in specimen reception during routine working hours, with a significant number of blood cultures taking more than 4 hours to be loaded after reception in the department.

Regional survey of neonatal blood cultures

NICE guidance recommends that a negative neonatal blood culture at 36 hours should be used in the decision process for stopping antibiotics. Six laboratories within the South West Region submitted retrospective data for sequential negative neonatal blood cultures over a 15-month period (time from

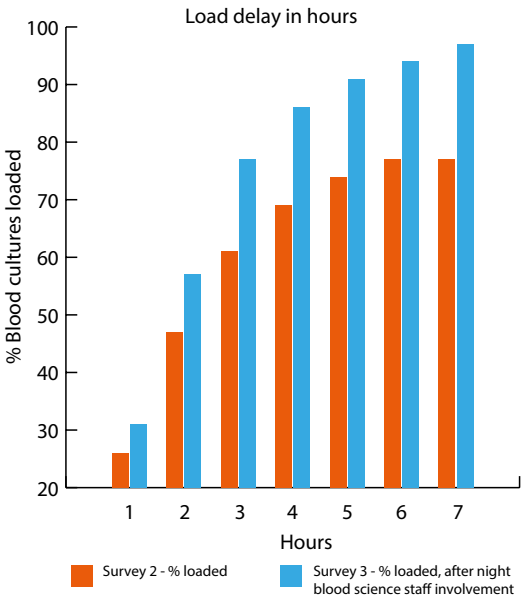


Figure 1: Time from collection to loading of bottle on machine (UHCW)

collection to loading on blood culture machine). Figure 2 shows the cumulative percentage of blood cultures loaded for each laboratory by increasing time from collection. No laboratory was able to show that blood cultures were loaded in a consistently timely fashion. Samples frequently took more than 4 hours to be loaded. We repeated the analysis excluding samples taken out of routine working hours (data not shown). This showed that in three laboratories there were still substantial delays in specimen processing (in all three cases only 75% of blood cultures taken within normal working hours had been loaded within 16 hours of specimen collection).

We looked at the time taken from loading a blood culture to release of a negative report to clinicians. Only four laboratories could provide this data. Only one centre could consistently issue a visible report within 36 hours of loading (data not shown).

The overall time from blood culture collection to net result of the time taken from collection to issuing a negative report is shown in Figure 3.

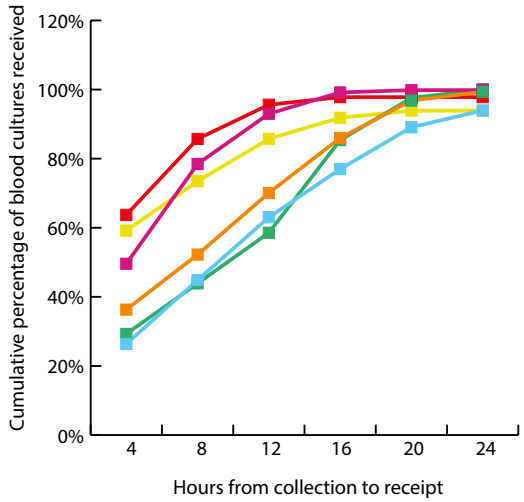


Figure 2: Time from collection of blood cultures from neonates to receipt onto the blood culture machine (data from six anonymised centres in South West region)

National blood culture survey

A survey proforma consisting of 13 questions was developed. The survey was performed by two consultant microbiologists contacting senior microbiology staff in hospitals chosen at random across the UK. Forty-three laboratories participated, including both teaching and acute DGH hospitals. All had blood culture machines on site. In one instance, the laboratory was off site from the hospital.

Sixteen laboratories provided a service to another hospital (teaching or DGH) that did not have a blood culture machine on site. Blood cultures were stored overnight (pending transport to the laboratory next morning) at room temperature in 75% of cases. The remainder were placed in an incubator.

None of the 43 laboratories loaded their blood culture machine during the night. There was almost a 50/50 split (21 versus 22) between laboratories pre-incubating blood cultures or leaving them at room temperature overnight. Thirty-one laboratories had a 24-hour shift system in blood sciences.

During the weekday, the average time the last positive blood culture would be processed was 7 pm, with a range from 4 pm to 10 pm. At weekends, this changed to 6 pm, with a range from midday to 10 pm.

Ten laboratories did not perform rapid identification tests on positive blood cultures. Of the 33 that did, tests were for Gram positive organisms: pneumococcal antigen (most common), staphylococcal ID or streptococcal group. Tests for staphylococcal ID included thermostable DNA'se (3), MALDI-TOF (1) and tube coagulase (9).

Forty-one laboratories set up direct sensitivity tests on positive blood cultures using disc methodology. Two laboratories did not perform direct sensitivities as it is not recommended by the British Society for Antimicrobial Chemotherapy (BSAC). One laboratory undertook rapid sensitivities on Gram-negative rods producing a result in less than six hours.

Outside of routine hours, in 15 laboratories, if a biomedical scientist was called in and a blood culture was found to have flagged positive a blind subculture would be performed.

In 68% of laboratories blood culture turnaround times were never audited. Two laboratories audited regularly, 11 occasionally and in one the respondent did not know.

Discussion

In Cowling and Croal's useful paper on quality in pathology,[1] they point out a number of areas for improvement, including reducing variation between laboratories, and that laboratories were "all too often being accreditation focused rather than patient focused". We believe the results of the surveys presented support this view.

There is a temptation, from a laboratory perspective, to assume that the mere presence of a

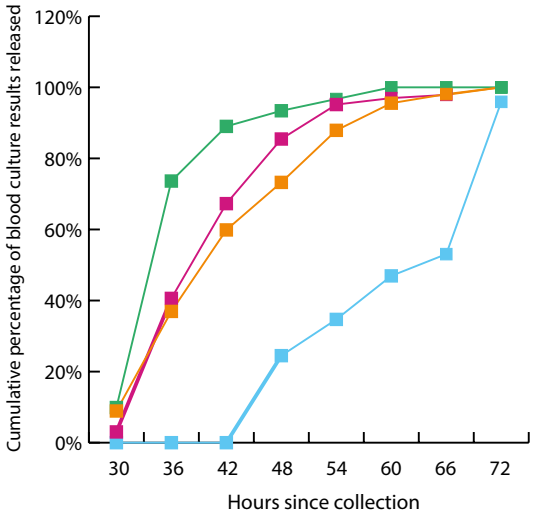


Figure 3: Time from collection to release of validated negative result in neonatal blood culture (data from four anonymised centres in South West region)

hi-tech blood culture machine is sufficient (i.e. everything else will fall into place). The teaching hospital and regional surveys demonstrate that considerable delays in the processing of blood cultures do occur and go undetected ("much to everyone's surprise"). For individual microbiologists and clinicians, it is difficult to judge whether blood cultures are processed in a timely manner because of the innate variability in time to positivity between specimens. It is this variability that allows inefficient practices to remain hidden. The national survey confirms that most laboratories (67%) do not audit turnaround times

This work shows it is important to identify (audit) and study the causes of variation in a process. The hospital surveys showed that, even during the working day, it often took four hours for a sample to be placed on the blood culture machine sited less than 30 m away from specimen reception. Similar findings were apparent in the regional survey. No centres in the regional survey could consistently produce a report to aid clinicians at the clinically important 36-hour decision point. The national survey showed significant variation between laboratories in the processing of specimens outside the normal working day, particularly at weekends and over public holidays. It is unlikely this will be seen as acceptable in a modern health service.

Once variation and its causes are understood, relatively simple interventions become apparent. Load delays out of hours were significantly improved in the hospital survey by utilising existing blood science staff who work a shift system. Blood culture technology has advanced, making it possible to site blood culture machines in a centralised reception/blood sciences department and yet receive information in microbiology when a bottle flags positive. Locating machines at the point of receipt is likely to reduce load delays throughout a 24-hour period.

In 2013 the UK National Standards Unit published an investigation of blood cultures, SMI B37, setting out maximum time periods for the various stages of processing (pre-analytical, analytical and post-analytical). This is the first standard to set out specific time frames for key performance indicators.[2] It necessitates laboratories to audit the blood culture process from collection through to issuing a report, and so encompasses areas that have often been neglected by accreditation bodies.

The move towards adoption of ISO15189 by Clinical Pathology Accreditation (CPA), and the recent Barnes review of laboratory quality[3], will force laboratories to pay more attention to end-to-end processes as markers of overall quality if they are to be accredited. We encourage any move that takes governance towards indicators that are relevant to clinical practice. Blood cultures are taken from the sickest patients. Early optimisation of therapy has been shown to reduce mortality, and reduce costs, in some settings.[4] The imperative to produce timely antibiotic-sensitivity results will only increase as multi-resistant pathogens become more and more widespread, and pathologists need to ensure that laboratory services are responsive to this demand.

Dr Tom Lewis
Consultant Microbiologist
North Devon District Hospital

Mr Ian Sturgess
Laboratory Manager
Coventry & Warwickshire Pathology Services

Dr Jay Kavi
Consultant Microbiologist
University Hospitals Coventry and Warwickshire NHS Trust

Dr Michael Weinbren
Consultant Microbiologist
Chesterfield Royal NHS Foundation Trust

References

1. Cowling P, Croal B. Quality in pathology: Setting the benchmark for others. *RCPath Bulletin* 2014;166:104–112.
2. Public Health England. *SMI B 37: Investigation of blood cultures (for organisms other than Mycobacterium species)*, 2014. www.gov.uk/government/publications/smi-b-37-investigation-of-blood-cultures-for-organisms-other-than-mycobacterium-species (accessed 29 June 2015).
3. Barnes I (Chair). *Pathology Quality Assurance Review*, 2014. www.england.nhs.uk/wp-content/uploads/2014/01/path-qa-review.pdf (accessed 29 June 2015).
4. Bauer KA *et al.* Review of rapid diagnostic tests used by antimicrobial stewardship programs. *Clin Infect Dis* 2014;59 Suppl 3:S134–145.

Examinations results: Spring 2015

Successful candidates for the Part 1 examination

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

Clinical biochemistry

Dr Robert Anthony Desborough
Dr Christopher Duff
Dr Kate Elizabeth Earp
Dr Helen Falconer
Mrs Lisa Garrison
Miss Katie Hadfield
Dr Paul Hamilton
Mrs Samantha Hayes
Dr Jonathan Malo
Dr Rebecca McCann
Dr Craig McKibbin
Miss Francesca Meakin
Dr Timothy James Morris
Ms Erin Mozley
Dr Ana Rakovac Tisdall
Dr Laura Russell
Miss Nicola Seaward
Miss Krithika Subramaniam
Miss Laura Tooth
Miss Catherine Treslove
Mr Nicholas Unsworth

Haematology

Dr Habibah Abdul Halim
Dr Areej Rasem Mohammad Ali Aldahleh
Dr Zainab Salim Al-Housni
Dr Maha Al-Yahyai
Dr Ahmed Mohamed Ibrahim Bannaga
Dr Lalitha Seuwandi Basnayake
Dr Prateek Bhatia
Dr Claudia Boshier
Dr Joseph Browning
Dr Janine Collins
Dr Anna Cowley
Dr Matthew Cross
Dr Akila Danga
Dr Nirupa Desai
Dr Dunnya De-Silva
Dr Robin Dowse
Dr Sandra Easdale
Dr Nagah Gurashi Elmusharaf Abdelrahman
Dr Gerardo Errico
Dr Jenna Fielding
Dr Alemayehu Asfaw Gebreyes
Dr Charlotte Graham
Dr John Griffith
Dr Yisu Gu
Dr Katharine Hanlon
Dr Rand Adnan Hussein Hanoosh
Dr Khowla Hashaishi
Dr Catherine Hildyard
Dr Emily Hopkins
Dr Michael Joffe
Dr Clare Kane
Dr Ushma Kataria
Dr Alexia Katsarou
Dr Matthew Lee
Dr Sophie Lindsay
Dr Christine Liu
Dr Ludovica Marando
Dr Michelle Melly
Dr Clare Miller
Dr Emily Mitchell
Dr Jennifer Orr
Dr Jayne Osborne
Dr Jennifer O'Sullivan
Dr Abdul Baseer Qadri
Dr Mark Rafferty
Dr Sriram Ravichandran
Dr Kauser Raza
Dr Clare Samuelson
Dr Vallari Shah
Dr Julia Sikorska
Dr Victoria Stables
Dr James Taylor
Dr Anna Tsoulkani
Dr Lewis Vanhinsbergh
Dr Clare Webb
Dr John Willan
Dr Victoria Williams
Dr Abbas Zaidi
Dr Fehmida Zia

Histopathology

Dr Dua' Abuquteish
Dr Mohammed Marhoon Al Masqari
Dr Javier Alegre Abarrategui
Dr Amna Almutrafi
Dr Noura Aloudah
Dr Nicholas Archard
Dr Shaniar Rafee Aziz Aziz
Dr Farah Bashir
Dr Fatima Bashir Hassan Bashir
Dr Joanne Beasley
Dr Hemalatha Bhuvanai-Sitaraaman
Dr Rachael Bishop
Dr Reuben Borg
Dr Neal Benedict Bowman
Dr Marian Burr
Dr Ryan Butel
Dr Naomi Carson
Dr Matthew Thomas Clarke
Dr Jana Crosby
Dr Jillian Davis
Dr Lorna Donovan
Dr Peter Ellery
Dr Charisma Fernando
Dr Malgorzata Garbos
Dr Sammy Otieno Gaya
Dr Tanushree Ghosal
Dr Anusha Ginige
Dr Olga Gronowska-Szczecina
Dr Catherine Guy
Dr Rebecca Ann Halas
Dr Saroona Haroon
Dr Nausheen Henna
Dr Lauren Heptinstall
Dr Sidra Jahangir
Dr Manali Karpe

Dr Ute Laggner
Dr Wing Sze Lau
Dr Caroline Launay
Dr Christopher Ligory
Dr Hannah Mary Lowes
Dr Lauren Lumsden
Dr Susan MacPherson
Dr Yvonne McCartney
Dr Hanine Medani
Dr Tegan Miller
Dr Kalnisha Naidoo
Dr Asima Naz
Dr Paulin Ngongang
Dr John O'Neill
Dr Louisa Onuba
Dr Oluwaseyi Opanuga
Dr Thomas Papathomas
Dr Danny Parker
Dr Anna Paterson
Dr Iynool Rushda Rajak
Dr Gayani Ranaweera
Dr Punita Rao
Dr Sarala Ravindran
Dr Graeme Thomas Reid
Dr Duaa Saeed
Dr Rehab Samaka
Dr James Sampson
Dr Mrinal Sarwate
Dr Shivani Sharma
Dr Sooriya A N T Sooriyaarachchi
Dr John Jacob Staves
Dr Amos Tay
Dr Hiranya Tennekoon
Dr Elza Tjio
Dr Susha Varghese
Dr Rasika Virinder Pal Singh
Dr Claire Elizabeth Waites
Dr Janine Warnick
Dr Harshima Wijesinghe
Dr Soon Wong
Dr Hue-Tsi Wu
Dr Bingcheng Wu
Dr Anisa Zalewski

Immunology
Dr Melanie Sarah Hart
Dr Joanne Miller
Dr William Rae
Dr Melanie York

Medical microbiology
Dr Mukul Acharya
Dr Amna Afzal
Dr Shazaad Ahmad
Dr Lena Ros Asmundsdottir
Dr Alison Burgess
Dr Kavita Diddi
Dr Olubukola Esho
Dr David Eyre
Dr Andrea Falzon Parascandalo
Dr Irasha Thulani Hettiarachchi
Dr Anna Amrit Jarchow-MacDonald
Dr Dushani D Jayawardhana Mudalige
Dr Himanshu Khatri
Dr Daniela Kirwan
Dr Rebecca Lester
Mr Martin McHugh
Dr Vivek Nayak
Dr Gayathri Nayar
Dr Ciara O'Connor
Dr Sadhbh O'Rourke
Dr Padmaja Polubothu
Dr Yura Protaschik
Dr Christopher Ramsey
Dr Rosalind Vanessa Saunders
Dr Peter Michael Wirgman Slovak
Dr George Trafford
Dr Elan Micha Tsarfati
Dr Theodoros Vrouchos
Ms Ruth Waldron
Dr Jean Walker
Miss Leila White
Dr Ewa Zatyka

Veterinary clinical pathology
Dr Alina Ioana Bodnariu

Virology
Dr Ebaa Alawadhi
Dr Sophia Gillett
Dr Catherine Tracey Moore
Dr Bozena Poller
Dr Anna Riddell
Dr Thomas Whitfield

Successful candidates for the Part 2 examination

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

Clinical biochemistry
Miss Jane Margaret Armer
Dr Nicola Barlow
Dr Katharine Bates
Dr Ingrid Borovickova
Dr Sally Marie Brady
Dr Andrew Peter Brown
Dr Deepak Chandrajay
Dr Allison Chipchase
Dr Catriona Ann Lamont Clarke
Dr Weeratunga Arachchige Gayan Niroshan De Costa
Dr Supriya Joshi
Dr Emily-Rose Leach
Dr Gurjinder Nijher
Dr Susan Jane Oddy
Dr Mayur Vinaychandra Patel
Dr Lorna Evelyn Rashid
Dr Danja Schulenberg-Brand
Miss Sally Slack
Mr Neil Squires
Miss Mary Stapleton
Dr Fiona Lucy Louise Stratford
Mrs Charlotte Kathryn Syme

Clinical cytogenetics
Dr Sara Anne Dyer
Miss Sian Frances Jose
Mrs Deborah Morrogh

Forensic pathology
Dr Christopher Johnson
Dr Brett Lockyer

Haematology
Dr Mohamed Obaid Mohamed Al Zaabi
Dr Fahad Harib Khalifa Al-Ghafri
Dr Syed Yasir Altaf
Dr Seetharam Anandram
Dr Niamh Appleby
Dr Benjamin Bailiff
Dr Vishnu Prasad Banumukala Madhava Rao
Dr Ana Barroso
Dr Emily Bart-Smith
Dr Angela Collins
Dr Priya Dewan
Dr Emma Drasar
Dr Peter Dyer
Dr Dewi Tomos Eden

Dr Toby Eyre
Dr Hanadi Ezmigna
Dr Niharendu Ghara
Dr Kathryn Goddard
Dr Emily Graves
Dr Muhammad Hasan
Dr Catherine Ann Hockings
Dr Ayman Mubarak Habiballah Ibrahim
Dr Eleanor Ruth Jesky
Dr Francesca Mary Elizabeth Jones
Dr Michelle Lannon
Dr Sarah Lawless
Dr Alastair Lawrie
Dr Alison Jill Mackarel
Dr Christopher John McCauley
Dr Christopher Mitchell
Dr Duncan Murray
Dr Abida Naeem
Dr Fiona Helen Nicholson
Dr Thet Oo
Dr Amit Patel
Dr Amanda Dorothy Spencer Peppercorn
Dr Elizabeth Helen Phillips
Dr Gillian Pike
Dr Nita Prasannan
Dr Unaiza Qamar
Dr Shanthi Ramaraj
Dr Catherine Rea
Dr Mark William Robinson
Dr Meghna Ruparelia
Dr Chuen Tan
Dr David Taylor
Dr Banurekha Thangavelu
Dr Hung Fan Wong
Dr Henna Wong
Dr Eng Soo Yap
Dr Theingi Yin

Histopathology

Dr Niveen Abdullah
Dr Andleeb Abrari
Dr Maysoon Al-Ruhaibeh
Dr Mirza Sharjil Baig
Dr Thiagarajah Balamurugan
Dr Nesreen Mohammad Radwan Bataineh
Dr Matthew Beesley
Dr Caitlin Beggan
Dr Sarah Bell
Dr Brinder Singh Chohan
Dr Lindsey Patricia Mary Clarke
Dr Michael Eden
Dr Shirlaine Fasanya
Dr Ciaran Flynn
Dr Keen Shawn Foong
Dr Preethi Parvathi Gopinath
Dr Ban Jalil
Dr Hiran Kattilaparambil Ravindran
Dr Prabha Kushwaha
Dr Ruth Law
Dr Kok Hing Lim
Dr Victoria Jane Lynch
Dr Morna Macneill
Dr Sarah Monira Morcos
Dr Alia Nasir
Dr Sophia Neda
Dr Angheliki Nomikos
Dr Ola Nosseir Marzouk
Dr Nishant Sailes Patel
Dr George Powell
Dr Livia Raso-Barnett
Dr Muaaz Rizig
Dr Cliona Ryan
Dr Manonmani Sengodan
Dr Christine Elaine Shilling
Dr Ragini Sinha
Dr Ahmed Mohamed Atef Soliman
Dr Rhiannon Trefor
Dr Shing Lih Wong
Dr Sylvia Wright

Immunology

Dr Sarah Beck
Dr Charu Chopra
Dr Anjali Ekbote
Dr Mary Guckian
Dr Sarah Elizabeth Linstead
Dr Ania Louise Manson
Dr Sapna Rani Srivastava

Medical microbiology

Dr Salma Abdullah Alajmi
Dr Deirdre Brady
Dr Yoon Toong Chin
Dr Jane Elizabeth Cunningham
Dr Rosemarie Joy Daly
Dr Marcus Konrad Eder
Dr Faiha Kamaleldin Eltayeb
Dr Eleanna Giannatou
Dr Pamela Anne Hunter
Dr George Jacob
Dr Rekha Lopez
Dr Mbiye Agnes Mpenge
Dr Laura Nabarro
Dr Claire O'Driscoll
Dr Saba Qaiser
Dr Shomik Sibartie
Dr Patrick Stapleton
Dr Julia Anne Vasant
Dr Robert Weir
Dr Gemma Louise Winzor
Dr Tse Wong

Molecular genetics

Mr Mark Greenslade
Dr Emma Howard
Dr Han-Chih Lee

Neuropathology

Dr Kathryn Urankar

Paediatric pathology

Dr Nadia Emma Burgess
Dr Andre Joannou-Coetzee

Veterinary clinical pathology

Miss Carola Campora
Mr Pedro Miguel de Sousa Serra
Mrs Alison Farr
Mrs Philippa McLaren
Dr Timothy Williams

Virology

Dr Suzie Coughlan
Dr Nicholas William Machin
Dr Emilie Sanchez
Dr Jill Shepherd

Successful candidates for the Certificate examinations

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

Dr Andrew Richard Bamber
Dr Mickhaiel Barrow FRCPath
Dr Guy Betts FRCPath
Dr Richard George Brice
Dr Yi Ling Khaw FRCPath

Dr Amandeep Singh Mann FRCPath
Dr Susan A Prendeville FRCPath
Dr Emme Radomski FRCPath
Dr Anna Lucy Rycroft
Dr Yee Wah Tsang FRCPath

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

Dr Mickhaiel Barrow FRCPath
Dr Sarah Bell
Dr Rima K A Wahab Hussain FRCPath
Dr Ian Said FRCPath
Dr Sajothini Anupama Samarakoon FRCPath
Dr Kai Ling Soo FRCPath
Dr Benita Sybil Stevenson FRCPath
Dr Sylvia Wright

The following candidates have passed the Certificate in Medical Genetics:

Dr Kamath Arveen
Dr Simon Bodek
Dr Tracy Briggs
Dr Jennifer Campbell
Dr Emma Clement
Dr Andrew Douglas
Dr Elaine Fletcher
Dr Alison Foster
Dr Alice Gardham
Dr Jennifer Hague
Dr Jenny Higgs
Dr David Hunt
Dr Mira Kharbanda
Dr Victoria McKay
Dr Deborah Osio
Dr Helen Stuart

Medical consultants: new appointment offers

The following appointments have been offered (as at 18 May 2015), and are naturally subject to acceptance by the applicants. The lists are prepared by the College's Workforce Department, on the basis of returns completed by College Assessors on Consultant Advisory Appointment Committees and submitted by the above date. (Please note, however, we receive no return following 20% of AACs.) Any forms received after this date will be published in the next issue. If doctors fail to take up their posts or have any additional information, they should inform the Workforce Department on **workforce@rcpath.org**. Whenever you move home or job, please remember to inform the College Membership Department too, sending your new details to **membership@rcpath.org**

Region	NHS Trusts/Health Authorities	Base Hospital	Appointee
Chemical pathology			
East Midlands	Nottingham	Nottingham	Dr Hrushikesh Divyateja
Haematology			
East Midlands	University Hospitals of Leicester	Leicester Royal Infirmary	Dr Bethan Myers
East Midlands	United Lincolnshire	Pilgrim	Dr Charlotte Kallmeyer
East of England	Ipswich	Ipswich	Dr Mahesh K Panatt Prahladan
Kent, Surrey and Sussex	Brighton and Sussex	across sites	Dr Anita D Arasaretnam
North, Central, East London	Barts Health	St Bartholomew's	Dr Simon L Hallam
North, Central, East London	University College London	University College London	Dr Perla Eleftheriou
North West London	Imperial College	Chelsea and Westminster	Dr Ian H Gabriel
North West London	Imperial College	Hammersmith	Dr Jiri Pavlu
North West	NBS Blood and Transplant, North West of England	Liverpool Blood Centre	Dr Ulrike Paulus
North West	Warrington & Halton and St Helen's & Knowsley	across trusts	Dr Jeyaprakash Ramachandran
South London	Croydon	Croydon	Dr Edward J Truelove
South London	Guys and St Thomas	St Thomas	Dr Gerard Dolan
South London	Kings College	Kings College	Dr Julia R Czuprynska
South London	St George's Healthcare	St George's	Dr Rukma Doshi
South London	St George's Healthcare	St George's	Dr Pamala Kanagasabapathy
South West	Plymouth	Derriford	Dr David J Lewis
Thames Valley	NHS Blood and Transplant	Oxford Blood Centre	Dr Lise J Estcourt
Thames Valley	Oxford	John Radcliffe	Dr Neha Bhatnagar

LETB Region	NHS Trusts/Health Authorities	Base Hospital	Appointee
Thames Valley	Oxford	John Radcliffe and Anthony Nolan, Royal Free	Dr Robert D Danby
Wales	Cwm Taf	health board wide	Dr Abdel-Razel H A-R Abu-Sitta
Wales	Cwm Taf	health board wide	Dr Binyam S M Usman
Wessex	Hampshire	Hampshire	Dr Noel G Ryman
West Midlands	South Warwickshire	Warwick	Dr Katie Randall
Yorkshire and the Humber	Airedale	Airedale General	Dr Michail Spanoudakis
Histopathology/cytopathology			
East of England	Basildon and Thurrock	across sites	Dr Angela Cymerman
East of England	Peterborough and Stamford	Peterborough City	Dr Diana D Herman
Kent, Surrey and Sussex	Maidstone and Tunbridge Wells	across sites	Dr Savita P Honakeri
North East	Newcastle upon Tyne	Royal Victoria Infirmary	Dr Corina M Moldovan
North West	Blackpool Teaching	Blackpool Victoria	Dr Suboda M Weerasinghe
North West	Lancashire Teaching	Royal Preston	Dr Stephen S Mills
North West London	Imperial College	St Marys and Charing Cross	Dr Priya Mairembam
South London	Kings College	Kings College	Dr Corina G Cotoi
South London	Kingston	Kingston	Dr Yasir R Alwahab
South West	Gloucestershire	Cheltenham General	Dr Mahomed A Dada
Thames Valley	Oxford	John Radcliffe	Dr Eleni Ieremia
Thames Valley	Oxford	John Radcliffe	Dr Christopher M Stonard
West Midlands	Shrewsbury and Telford	Royal Shrewsbury	Dr Joanna L Kelly
Yorkshire and The Humber	Hull and East Yorkshire	Hull Royal Infirmary	Dr Afaf M El-Hag
Yorkshire and The Humber	Hull and East Yorkshire	Hull Royal Infirmary	Dr Mohamed M Musa
Immunology			
East Midlands	Nottingham	Queens Medical Centre	Dr Prashantha M Vaitla
MM, CCDC, virology and epidemiology			
East of England	Hinchingbrooke Healthcare	PHL, Addenbrookes	Dr Joy Baruah
East of England	West Hertfordshire	Watford General	Dr Hala M W Kandil
Kent, Surrey and Sussex	Ashford and St Peter's	St Peter's	Dr Farnaz Dashti
North East	Newcastle upon Tyne	across sites	Dr Lucia J Pareja-Cebrian
North East	Newcastle upon Tyne	across sites	Dr Daniel Weiand
North West	Bolton	Bolton	Dr Celia Chu
North West	St Helens and Knowsley	across sites	Dr Katherine J Gray
North West	Pennine Acute	across sites	Dr Michael Przybylo
North, Central, East and West London	Royal Free London	Royal Free	Dr Emmanuel Q Wey
Northern Ireland	Southern H&S	Craigavon	Dr Melanie M Pathiraja
South London	Guy's and St Thomas'	St Thomas'	Dr Samantha Levine
South West	North Bristol and University Hospital Bristol	across trusts	Dr Mohammed I Khan
West Midlands	University Hospitals of Coventry and Warwickshire	University Hospital	Dr Mark K H Li
West Midlands	University Hospitals of Coventry and Warwickshire	University Hospital	Dr Samita Majumdar
Neuropathology			
Thames Valley	Oxford	John Radcliffe	Dr Monika Hofer

George Craven Turner

Appreciation

George Craven Turner

As children, my younger sister Anne and I always enjoyed my father George's tales of his childhood – particularly the ones where he got himself into trouble. He liked to portray himself as a bit of a rebel, but his school and career success paint a more balanced picture: the questioning but able and conscientious achiever.

At school, George was a good all-rounder. He always claimed that his favourite subjects were history and maths. He enjoyed sports (more of that later) and the challenge of the chess club. Both my parents were 16 in 1939; George's birthday fell the day after Britain joined the Second World War. He recalled standing in the garden and thinking that things would not be the same again. He opted for sciences at Higher School Certificate (the forerunner of the 'A' level), with a view to reading medicine at university, because doctors would be needed and he could be of value – and sure of a job!

After graduating from Leeds University, where he spent the war years, he did his national service as a Medical Officer in Germany (by his own account he spent his time learning to drive and writing off inedible cheeses and meats) and then settled down to married life and a career as a lecturer and researcher in bacteriology at Leeds University. My mother, Pat, soon had my sister and I to contend with, but we all benefitted from her tremendous nursing skills and knowledge and she provided professional as well as personal support to George throughout his career.

As well as teaching and encouraging generations of medical students, George's work focussed on developing tests to identify the presence of particular illnesses to enable accurate diagnosis and suitable treatment. Many of the diseases he and his colleagues worked on are now household names: his doctorate dealt with whooping cough; his breakthroughs included salmonella, hepatitis, HIV and various versions of the intestinal infection clostridium. We should consider how many people are now able to be treated and healed as a result of his work.

Two particular experiences shaped this career. From 1957 to 1959 he was seconded to the University of Hong Kong to help set up a department of bacteriology. This gave him a broader experience, including knowledge of tropical medicine, which would stand him in very good stead and enabled him to work with many international colleagues. In 1961 he published research results jointly with a Chinese colleague, not exactly an everyday occurrence.

The second experience came in 1968. In 1962 George had taken up a post as hospital consultant at Sefton General Hospital in Liverpool. By 1968 he was the Director of the Public Health Laboratory in Liverpool – a post he held until his retirement in 1987 – overseeing expansion in the scope of the work and its relocation to Fazakerley Hospital. On 3 July 1968, he took a call from a general practitioner, who explained that on the previous Saturday a tournament and dinner had been held at Liverpool Tennis Club. Of the 120 who ate the dinner, 111 had to be admitted to hospital with severe food poisoning, and the search was on to track down the cause and the source. George, working with Andrew Semple, Medical Officer of Health for Liverpool and other colleagues, identified the cause as a form of salmonella and the source as chicken. Much of what is now common practice in terms of rearing, cooking and storing chicken stems from that investigation, which was published in the *British Medical Journal* on 28 December 1968. For something so technical, it is extremely readable – testimony to George's command of the written word. In places, it has the touch of a Sherlock Holmes or Hercule Poirot narrative, e.g. "cardboard boxes containing 120 chicken portions were delivered to the tennis club at 1.10 pm and remained unopened in the tennis pavilion kitchen until 4.30 pm. ...eaten... The day was hot and humid. At Speke Airport, three and a half miles away, the noon temperature was 64.6 degrees Fahrenheit...". The nation learnt a lot from the whole sequence of events chronicled in one short paper.

George's methodical and forensic approach and reputation within the medical world led to ongoing involvement in developing new tests to identify conditions such as hepatitis B and HIV and to numerous publications in medical journals. He delivered papers to conferences, sat on influential committees and encouraged the development of younger microbiologists (as bacteriology became known). He also defended the Public Health Laboratory Service on the grounds that it was a national service able to work across borders – as he had been able to do with colleagues in Cheshire in the hunt for the salmonella source.

As he was married to a nurse – herself a very capable and down-to-earth medic – he was able to share elements of this with Pat. At home he was not just a doctor dealing with horrid bugs, he was also a great cricket enthusiast, nature lover and bird-watching enthusiast. He was also a devout Christian and his life and work were celebrated at Christchurch in Southport on 15 April 2015, a month after his death.

Elizabeth Gifford nee Turner

Angela Douglas: Healthcare Scientist of the Year 2015

Angela Douglas of Liverpool Women's Hospital was winner of the Healthcare Scientist of the Year, in the 2015 Healthcare Science Awards.

Angela, a Fellow of The Royal College of Pathologists, is a consultant clinical scientist who has worked in the NHS in genetics for more than 35 years. She is the Scientific Director of the Cheshire and Merseyside Genetics Laboratory Service at Liverpool Women's Hospital, where she has worked for 17 years. In that time Angela has been a Trust Senior Manager, Staff Governor and Vice Chair of the Trust Governors Board, all of which overlapped maintaining a lead clinical role of a growing medical genetic service.

Angela was the last Chair of the Association for Clinical Cytogenetics (ACC) and was instrumental in merging two professional bodies, the ACC and the Clinical Molecular Genetic Society, to form the Association for Clinical Genetic Science for the UK, of which she was the first Chair. In September 2012 Angela was nominated as the Vice Chair of the British Society for Genetic Medicine (UK) and became the elected Chair in September 2013, a position she still holds.

Angela was a member of the service delivery, innovation and bioinformatics working groups of the Human Genomics Strategy Group that provided the evidence and recommendations for the Department of Health's Genomics Review in 2012 and the Government's 100,000 Genome Project and continues to work with the group to ensure their recommendations and the project are delivered.

Angela represents Cheshire and Merseyside on the Medical Genetics Clinical Reference Group ensuring equity, access and appropriate commissioning of genetic services for the population of Cheshire and Merseyside. After having chaired the Cheshire and Merseyside HCS Network for many years, Angela was appointed to the position of the NW Scientific Director and Lead Scientist, leading all three of the NW Healthcare Science Networks, since 2010, and works with NHS England, Health Education England, the Academic Health Science Networks, supporting the 51 healthcare science disciplines across the NW and having a national role to ensure safe and sustainable healthcare science diagnostic services across England.

NHS Healthcare Science said: "On top of all this, Angela lead a successful bid to make the NW Coast a Genomic Medicine Centre entity for the 100,000 Genome Project. She used her leadership skills, scientific reputation and genomic knowledge to bring together, across the landscape, all the key genomic players... to ensure that through the NW Coast GMC we will address the variation in diagnostic testing, raise the standards of genomic services in the NHS and improve the outcomes for patients across the NW Coast. Angela gave us the vision to believe we could do this and the inspiration to keep going when we thought we would never get through, and has made us all dare to believe we have a genomic offering that can match any of the best in England."

Deaths

The deaths of the following Fellows were announced at the June 2015 Council meeting. We extend our condolences to those who grieve for them.

John Francis Arthur	New Zealand
Thomas Bird	UK
Charles Routledge Coid	UK
Peter Miller Dennis	Australia
Arthur James Hale	UK
James Martin Inglis	UK
Donald Metcalf	Australia
Francis William O'Grady	UK
Jennifer Elizabeth Tolhurst	UK
George Craven Turner	UK
Brian Watt	UK
Daniel Peter Webster	UK
Graham Whyte	UK

From test tube to the bedside: first National Transfusion Training Day

The first National Transfusion Training Day, held at The Royal College of Pathologists in November 2014, received an outstanding turnout and extremely positive feedback from delegates.

Recognising the absence of uniformity in transfusion exposure during training, three trainee haematologists – under the guidance of Professor Mike Murphy and Dr Kate Pendry – conceived and organised the course, which was attended by a mixture of haematology registrars, consultant haematologists, biomedical scientists and transfusion practitioners. The day commenced with a warm introduction from the then College President, Dr Archie Prentice, who acknowledged the importance of transfusion medicine in the haematology curriculum, recognising it is an area often neglected during training. Using a mixture of interactive case-based format and lectures, the day was then split into three sections. The morning was a celebration of the exciting research that was happening in transfusion, as we heard from Professor Dave Roberts and Dr Lise Estcourt who enthused the audience with their groundbreaking work. Delegates gained an insight into the challenges that face a researcher but were also able to appreciate the clinical benefit of such work, as demonstrated by the recent findings of the TOPPS trial (a randomised controlled trial of a no-prophylaxis platelet-transfusion strategy for haematological cancers).

Figure 1: The organising committee and Dr Prentice - from left to right: Mike Desborough, Shruthi Narayan, Kate Pendry, Archie Prentice, Sam Alimam and Mike Murphy

The clinical sessions began with a visit to the paediatric transfusion laboratory, where Dr Helen New made the delegates aware of the challenges encountered in children. This was followed by an extensive oversight of massive haemorrhage by Dr Nicola Curry, and an overview of the management of thrombocytopenia and the challenges encountered in transfusion by Dr Simon Stanworth. Dr Nay Win reminded the audience that un-transfuseable patients exist and gave us an insight into how he manages the multi-transfused patient with examples from his haemoglobinopathy patient cohort. The audience was made aware of the challenges that face transfusion medicine today and the importance of blood patient management by Dr Kate Pendry, before Dr Sue Pavord closed the day with an overview of transfusion in the obstetrics settings.

Over 80 people attended, and they particularly welcomed the interactive and clinical layout of the day. They identified subject areas such as transfusion in the paediatric and obstetric settings to have been particularly challenging and reported that they felt much more confident in these areas after attending the training day. The session on research in transfusion medicine was well received and will continue to feature on the agenda, showcasing the new work done in the area.

Some quotes from the day

"I wanted general teaching around different and difficult transfusion cases based on real clinical scenarios to gain more experience – this was achieved!"

"Everything is well explained. The speakers are very good."

"It was very good, informative and yet pitched at a level that I could understand."

"The training was good; I only wished I attended before I started doing my MSc project."

The training day was a great success. It provided an excellent forum for bringing haematology trainees, consultant haematologists, transfusion specialist nurses and biomedical scientists together to learn more about transfusion medicine. For haematology trainees, the focus was not only to provide knowledge to pass the FRCPath, but also to

Figure 2: Trainees at the National Transfusion Training Day

encourage consideration of a period of research or even a career in transfusion medicine.

The second National Transfusion Training Day, 'Transfusion medicine: Preparing you for challenges – make every decision count', will take place on 10 October 2015 at St Thomas' Hospital, London. We invite all trainee haematologists and anyone with an interest in haematology or wanting an update to attend.

Dr Michael Desborough
NHS Blood & Transplant (NHSBT), John Radcliffe Hospital, Oxford

Dr Sam Alimam
Guy's and St Thomas' Hospital, London

Dr Shruthi Narayan
Salford Royal NHS Foundation Trust

Dr Kate Pendry
NHSBT, Manchester and Central Manchester University Hospitals NHS Foundation Trust

Professor Mike Murphy
NHSBT, John Radcliffe Hospital, Oxford

Acknowledgements
The team are very grateful for the generous support of the British Society for Haematology, NHS Blood and Transplant, Celgene and Chugai for the running of the day.

Dr Caroline Thaung

British Association for Ophthalmic Pathology meeting

The 34th annual meeting of the British Association for Ophthalmic Pathology took place in Glasgow on 19-20 March 2015, hosted by Dr Fiona Roberts. The meeting was attended by 35 delegates including a substantial number of trainee ophthalmologists, a pleasing indicator of the relevance of histopathology to clinical ophthalmology.

The scientific programme was varied, with presentations including clinical case reports and series alongside more basic science-related talks. Different manifestations of infectious diseases were presented, including a case of pythiosis presented by Professor Godfrey Heathcote, and a case of rhinosporidiosis presented by Dr Aaron Jamison. Emma Scurrell continued the infectious theme with a series of ocular mycobacterial infections in cats.

Practical diagnostic points were addressed, with Dr Hardeep Singh Mudhar presenting a review of ocular cicatricial pemphigoid, and Dr Luciane Dreher Irion presenting an evaluation of recently developed immunohistochemistry in diagnosis of orbital solitary fibrous tumour. Reviews of orbital soft tissue and lymphoma pathology were provided by guest speakers, Dr Elaine MacDuff and Dr Bob Jackson respectively.

Drs Hardeep Singh Mudhar, Richard Bonshek and John Bladen having a break

I then provided an overview of two quality-improvement exercises undertaken by the National Specialist Ophthalmic Pathology Service (NSOPS). NSOPS members form a subset of BAOP members and it is hoped that the results of these exercises will be of use to all members.

Moving away from laboratory-based practice, Dr Peter Stewart (a mathematician) and Dr Richard Bonshek demonstrated how mathematical modelling may help to explain the mechanism of optic nerve sheath haemorrhage in head injury in infants.

There were 13 presentations by trainees, all of impressive quality. The Dr R Jean Campbell Award for the best presentation by a trainee was given to Dr John Bladen for his talk on 'Identification of genetic factors in morphoeic basal cell carcinoma'. Other themes in the trainee presentations included corneal endothelial migration following posterior corneal graft-

ing, and complications of both surgical and non-surgical treatments for cancers. The latter (including some quite gruesome clinical photographs!) were a potent reminder that undesired consequences can occur, no matter how carefully planned the management.

The year's Ophthalmic Pathology National External Quality Assessment Service cases were presented by Drs Mudhar and Irion. In addition to the cases provided for scoring, the scheme now includes educational (non-scoring) cases which provide opportunity for examination and discussion of unusual cases as part of the scheme.

Next year's meeting will be held at Magdalen College, Oxford on 17–18 March 2016. If you are interested in attending or would like information about BAOP, please visit www.groupspaces.com/baop or contact me on c.thaung@ucl.ac.uk

Dr Caroline Thaung
BAOP Secretary
Consultant Ophthalmic Pathologist
Moorfields Eye Hospital/UCL Institute of Ophthalmology

Dr Helen Clarke

Association of Clinical Embryologists: Training Our Future Workforce

Every other year the Association of Clinical Embryologists (ACE) holds a best-practice meeting to address current issues in the field of embryology.

This year's meeting took place in Sheffield on 21 April and tackled the challenges surrounding the recruitment and training of our future workforce since the introduction of the Scientist Training Programme (STP) in 2011. Sarah Race and Gareth Woods (Health Education West Midlands) detailed workforce planning and the steps involved to access funding. They clarified that this application is the same for both private and NHS employers, the main proviso being that the clinic does deliver an NHS service. It was clear that there is disparity across the country regarding allocation of funding to private units. ACE agreed that this is an issue that needs addressing immediately if we are to maintain the number of new embryologists entering the field that will be needed to support the increasing demand for assisted reproduction services in the UK.

Jennie Bell, from the National School of Healthcare Science, gave an incredibly useful overview of the structure of the STP and talked about how to organise rotations, electives and research projects. She talked about her positive involvement in training STP genetics students and hosting those from other disciplines. She stressed that the rotations build beneficial links between departments and allow the trainee to develop professionalism and gain confidence. This observation was strongly supported by an STP supervisor, who commented how useful it had been to have two genetics trainees within her IVF clinic, in terms of the knowledge and insight that they contributed and the links that had since been established between the departments.

Senior embryologists shared their experiences of recruiting and training a direct entry trainee into an NHS clinic (Paul Wilson, Bristol Centre for Reproductive Medicine) and an in-service trainee into a private clinic (Charlotte Hall, BMI Sussex Downs). Paul spoke very positively about his experience and highlighted how his trainee contributed to service delivery and how her research project has directly benefited the unit. Overall he found the recruitment and selection process very organised, with good communication from the MSc team, and very high-calibre, self-motivated students. Charlotte described her clinic's pioneering act of being the first private unit to recruit an in-service STP student. This route has gained in popularity since STP was introduced and Charlotte described the advantages of using this strategy. She also suggested that it may be particularly suited to those private units that do provide NHS services.

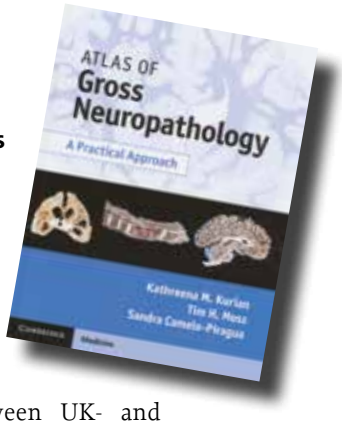
After a lively debate and final discussion, the general consensus was that everybody needed to get on board in order for the STP for reproductive science to succeed. This training route is here to stay and those who have already participated have found that the scheme delivers motivated, capable and useful trainees – for free!

If you would like to find out more about recruiting and training your own STP student, please visit www.nshcs.org.uk

Dr Helen Clarke
Senior Clinical Embryologist
Jessop Fertility, Sheffield
on behalf of the Association of Clinical Embryologists (ACE)

Atlas of Gross Neuropathology: A Practical Approach

Kathreena M Kurian, Tim H Moss and Sandra Camelo-Piragua
Cambridge University Press, 2014, £85, 241 pp
ISBN 978 1 10703 816 5



This excellent atlas and visual reference guide to macroscopic neuropathology is a collaborative effort between UK- and US-based neuropathologists. It draws on their collective experience to assimilate a wide range of images of fixed autopsy neuropathology specimens.

Every chapter opens with a background introduction before presenting each image with a short legend. The legends provide useful background clinical information to complement the images and guide the reader's eye to the features being described. The chapters have been organised into broad diagnostic categories, each subdivided for rapid reference. The images consist largely of high-quality photographs of fixed brain sections, notably superior to the image quality in other gross pathology atlases. Throughout the text are occasional histological images, chosen to complement the macroscopic pathology and aid basic correlation. Histological whole brain mounts have additionally been included to better demonstrate large architectural pathological features. This is particularly helpful in the chapter concerning white matter diseases. Scattered electron micrograph images appear in the text to demonstrate classic ultrastructural findings. Further reading suggestions including larger neuropathology texts and review papers are given at the end of each chapter.

The opening chapter briefly reviews the basic pathological reactions to disease by the central nervous system (CNS) and provides useful rapid information for medical student teaching, for example. The following chapters concern topics of use or interest to a wide audience. It is clear that the chapters on CNS trauma and spinal disease will be of interest to neurosurgeons. The trauma chapter in particular demonstrates high-quality images of the changes seen macroscopically in diffuse traumatic axonal injury. Images of penetrating head injury will additionally be of interest to forensic pathologists in training.

Many chapters will be of use to the general pathologists performing coronial post mortems. The vascular disease chapter in particular outlines the macroscopic pathological changes seen in cerebral infarctions, venous infarctions, global hypoxic events, subarachnoid and primary intraparenchymal haemorrhages. The chapters covering neoplastic and neurodegenerative processes provide an excellent overview of these conditions, supplemented with carefully chosen histological images. Further chapters cover bacterial, fungal and viral infective conditions as well as acquired metabolic disorders which may be encountered in general as well as specialist post-mortem practice.

This hardback text is supplemented by fully searchable online access to a Cambridge Books Online account, allowing the images presented in the book to be viewed remotely. The atlas provides high-quality macroscopic correlations to compliment information available in larger specialist texts. Overall, this is a very well presented, easy-to-read macroscopic atlas of neuropathology that should find a wide readership among trainees and established practitioners alike.

Dr Harry Haynes
Clinical Research Fellow, University of Bristol
StR Cellular Pathology, North Bristol NHS Trust

Diagnosis of Neoplasia in Endometrial Biopsies: A pattern-based and algorithmic approach

Oluwole Fadare and Vinita Parkash
Cambridge University Press, 2014, £73.24 , 176 pp
ISBN 978 1 10744 233 7

This is the first edition of the book, which takes a thorough approach to the wide variety of neoplastic entities that may be encountered in endometrial biopsies.

It is divided into eight chapters covering: evaluation of endometrial samples, endometrial biopsies/curettings with roughly equal glands to stroma ratio and gland-predominant lesions, together with chapters on malignant epithelial proliferations, spindle cell, round cell and epithelioid cell lesions, and a final chapter on gestational trophoblastic disease.

In general, the book's tone is both descriptive and analytical. Given the title, every chapter has a plethora of flow charts and photomicrographs which, if indeed adhered to, will make life much easier for histopathologists reporting endometrial biopsies.

Almost all the flow charts are easy to read and simple to follow. The book is also lavishly illustrated with photomicrographs, all of which are coloured. All the photomicrographs, whether those of H&E-stained sections or those of immunohistological markers, are of high quality. The captions are very clear and are accurately cross-referenced to the written, descriptive text.

Although all the chapters are generally well organised and are easily readable, I was quite impressed by the chapter on the pathology of endometrial carcinoma with its various histological subtypes. Endometrial carcinoma is currently the most common invasive malignancy of the female reproductive system in the UK and it certainly deserves, together with the immediate preceding chapter on endometrial hyperplasia and metaplasia, a total of 56 pages dedicated to them in this 172-page book (excluding the index).

There are a large number of references at the end of each chapter, with 140 references related to the chapter on endometrial carcinoma.

I could only find a few minor criticisms related to this book. The old terminology, 'low grade' endometrial stromal

sarcoma, was still used. There is persistent use of the originally American term 'intermediate trophoblast' in the chapter on gestational trophoblastic lesions, instead of the more accurate terms 'non villous' and 'extra villous trophoblast' commonly used in the UK. However, since both authors practise in the USA, they have a good excuse! I was also quite surprised that in the first chapter, which partly deals with the techniques and procedures used in obtaining endometrial tissue and the assessment of the adequacy of the obtained sample, I could not find any mention of the term 'pipelle biopsy' anywhere, not even in the index!

The above criticisms should not, however, detract from the considerable qualities of this book, including the nice price of £73.24. It should be considered as a valuable addition to the increasing number of bench books on uterine pathology.

Dr Ali Sherif
Consultant Histo/Cytopathologist
Russell's Hall Hospital, West Midlands

Handbook of Forensic Medicine

Burkhard Madea (editor)
Wiley-Blackwell, 2014, £250, 1312 pp
ISBN 978 0 47097 999 0

This hardback textbook, which is a satchel-breaking 1288 pages of text, certainly doesn't fulfil the original definition of a handbook as provided by the Oxford English dictionary: a "...book small enough to be easily portable". The editor outlines his wish to produce a text that "comprises all current aspects of forensic medicine", not just forensic pathology, and to this end a legion of international contributors (86 by my count), with the largest number originating from Germany, have compiled a textbook that attempts to address the needs of both forensic pathologists and forensic medical examiners.

The book begins with a brief history of forensic medicine before describing the duties that practitioners in forensic medicine should adhere to, as well as touching upon international guidelines and accreditations. Parts 2, 3 and 4 of the book deal with the area of most interest to me: forensic pathology. In just over 600 pages, topics such as the process of death, post-mortem changes, trauma and sudden unexpected natural deaths are discussed. Parts 5–8 address topics more relevant to the practice of forensic medical examiners, covering forensic medicine (including sexual violence), forensic psychiatry, toxicology and traffic medicine. The ninth part deals with issues around identification, whilst Part 10 examines the relationship between the doctor and the law. The eleventh part discusses insurance medicine.

As might be expected, the range of topics covered means that a number of issues are not discussed to the depth that readers might require. In some instances it may be necessary to consult textbooks dedicated more specifically to a particular topic to find the level of detail needed. The scope of this textbook also means that several topics are touched upon in more than one section of the book. I could envisage that for some readers (particularly those new to the speciality), this could make locating the precise information required time consuming and confusing.

Many aspects of forensic medicine are visual and this text is accompanied and enriched by a large number of clear, detailed photographs, with images on almost every page. The book contains some of the most impressive illustrative photographs of injuries that I have encountered in any forensic publication.

Although it will not necessarily replace some of the classic texts available, this book will undoubtedly complement them and will find a happy home in the offices of many forensic medical examiners and pathologists, where it will prove to be a useful addition. To this end, whilst the editor has not produced what anyone could claim is an easily portable text, he has certainly succeeded in fulfilling an alternative definition of a handbook: a "compendium of information" that this reviewer anticipates returning to again and again.

Dr Ian H Wilkinson
Consultant Forensic Pathologist NHS Lothian
Edinburgh

Terror and Wonder: The gothic imagination

Dale Townshend (editor)
British Library Publishing, 2014, £17, 224 pp
ISBN 13 978 0 71235 791 3

"And much of madness, and more of sin, and horror the soul of the plot".
The Conqueror Worm, EA Poe

It had been many years since I had seen the hallowed towers of my old college, my nocturnal pursuits having taken me away from its halls. So it was with trepidation that I received the plainly wrapped tome from my good friend Dr B____.

Its content was of matters close to my heart, but would it enlighten, damn or simply fill my soul with ennui? True, it was a weighty volume, of good quality paper, and the most cursory of examinations showed it to be well illustrated. Ah, but what of the contents?

As I pored over it, the candlelight flickering wanly, my mind was filled with its rich words and images. From the half-remembered myths of forgotten ages to this modern era, I was transported by the scholarship of that we know as 'gothic'. From the darkling seeds sown so many years in the mouldering labyrinth of Otranto to the blasphemous, ever-mutating tendrils pervading the cracks of our modern life, from architecture and politics to poetry and literature, few stones were unturned in revelation of the maggoty and hag-ridden secrets of this form of art. True, for my part I found the more recent expressions of the 'gothic' to be feeble reflections of the lofty past, rendered sallow and pale by the passing of years, but perchance this speaks to my advancing age and history. 'Tis also true that while the nightmarish traditions of our fear-laden isles are wondrous, I would have preferred to learn more of our cousins abroad, fellow seekers

in the benighted realms. What of the dipsomaniac ravings of Mr Poe, or the cacodaemonical sabbats of Goethe? Surely they should be reckoned as great as Walpole, Radcliffe and Fuselli? Should not Randolph Carter walk as an equal with foul Mr Hyde?

But I must set aside my trifling muttering, for these essays shall sit side by side with the yellowing pages of the broken-spined contents of my library of the macabre, their outward appearance mirroring the decay depicted within.

Editor's note: This parchment was discovered in the old library of a late relative. I believe it to be a book review of sorts, and it would appear that the anonymous author enjoyed the book that he had read. S_____ H_____ 2014.

Dr Stuart Hamilton
Consultant Forensic Pathologist
East Midlands Forensic Pathology Unit, Leicester

Histopathology Specimens: Clinical, pathological and laboratory aspects (2nd edition)

Derek C Allen and Iain R Cameron (editors)
Springer, 2012, £135, 523 pages
ISBN 978 0 85729 672 6

A hard-back cover, increased numbers of illustrations, updated protocols and wider consideration of molecular techniques have improved this new edition of a popular and well-used reference, written and edited by experienced colleagues based in Northern Ireland.

As with all books I am asked to review, I took this into work and left it in the reporting room in order to get a wider opinion and a 'mystery shopper' view on how it is used. That the book was sometimes hard to track down is a testament to its usefulness in day-to-day practice for histopathology trainees. The more junior trainees referred to it more frequently than senior trainees. In the era of speciality reporting and cut-up, it was particularly useful as a 'refresher' at the start of a new rotation, or when faced with an unfamiliar specimen.

Following an introductory chapter highlighting the importance of the surgical specimen in clinical care, diagnostics and research, the book is arranged into parts (systemic systems) and divided into organ specific chapters. Each chapter follows a similar layout: anatomy, clinical details (presentation and investigations), pathological conditions (non-neoplastic and neoplastic) and then surgical pathology specimens. These are divided into biopsy and resection and the laboratory protocols are summarised: preparation of the specimen, macroscopic descriptors, block taking and report. The final part of the book covers ancillary tests (immunohistochemistry, immunofluorescence, flow cytometry, *in-situ* hybridization, FISH and molecular genetics), clinical request form abbreviations and a resection specimen blocking summary. Each chapter ends with a bibliography. The illustrations are in the form of well-designed schematic diagrams of anatomy and surgical specimens with clear annotations. A logical repeated format for each part allows fast referencing prior to approaching any specimen, or indeed reminding oneself of the key points prior to teaching more junior colleagues.

The preface makes reference to The Royal College of Pathologists' published standards and datasets for handling and reporting surgical specimens, and in using this book I did find good agreement between these and the text. There are, however, local standard operating procedures (predominantly cut-up procedures) that do not entirely align with the text, and this is not unexpected.

The inclusion of clinical rationale behind each of the surgical specimens is extremely useful. As an overall guide to histopathological specimens, this is an excellent text. The strength of the book lies in the concise summary of information and excellent diagrams.

It has a role in the reporting room library for day-to-day work. It is also useful as a personal reference book for those preparing for examinations as it covers all types of specimen, some of which we may not have encountered in our rotations.

The review copy is in our reporting room and since its arrival has been used regularly by myself and my colleagues.

Dr Kirsty Lloyd
ST5 Histopathology
Barts Health NHS Trusts

Risk Savvy: How to make good decisions

By Gerd Gigerenzer
Allen Lane, 2014, £11.99 (paperback), 336 pages
ISBN 978 1 84614 474 5

Do experts misunderstand risk and have trouble explaining probabilities? In a chapter entitled 'What doctors need to know', the author writes: "my estimate is that about 80 percent of doctors do not understand what a positive test means, even in their own specialities. They are in no position to counsel their patients adequately, nor can they critically evaluate a medical journal in their own field." Whether you agree or disagree with this statement, this book is essential reading.

It is suggested that one of the key steps in becoming 'risk literate' is always to ask for a reference class. For example, following the release of information that contraceptive pills increased the risk of thrombosis by 100%, there were 13000 additional abortions. The author attributes this to a misunderstanding of the significance of an increase from 1 in 7000 to 2 in 7000. Yes, there was a 100% increase in those with thrombosis, but the rate only went from 0.014% of a reference class of 7000 to 0.029%. The point is well taken that some reporting of statistics is deliberately misleading in order to sell more news and more advertising space. The author writes: "It should be the ethical responsibility of every editor to enforce transparent reporting and it should be on the agenda of every ethics committee and every department of health".

The notion of 'false positives' is explored, with some surprising figures. We are asked how many women who test positive for cancer on a mammogram actually have breast cancer. The answer is 1 in 10. The other nine are false alarms.

The book explains how to understand this figure by considering 'natural frequencies' rather than percentages.

An interesting comparison is made between aviation and medicine. In aviation, there have for many years been checklists imposed in order to reduce errors. In medicine, research has shown both their efficiency in reducing malpractice and the reluctance of many doctors to use them. In addition, the importance of having a work culture that encourages the discussion of errors is noted. The head of risk management of an airline is quoted as saying: "If we had the safety culture of a hospital, we would crash two planes a day."

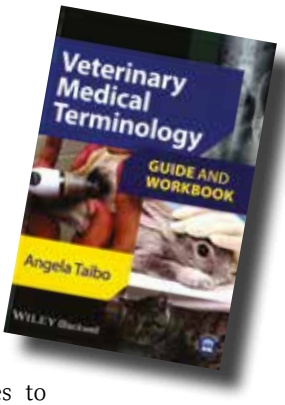
Whilst this review concentrates on the medical elements discussed in the book, there are many interesting examples from other fields. One omission, however, seems to be any discussion of the concept of 'significance' in statistics. We are bombarded with figures in our lives but seldom told whether these figures are statistically significant or, in other words, are worth paying attention to. This may, however, be reserved for a later book.

Generally, the (German) author provides references for all of the figures he quotes. One surprising exception to this is his statement that "on average, Italians spend some hundred hours per month sitting in front of their TV screen, watching glitzy but dull shows featuring women called *veline* dressed in heels and not much else". He may be right, but where is the footnote? And in any case, maybe they are reading one of his books on their laptops at the same time?

Dr Carole A Cotter
Lay member of RCPath Ethics Committee

Veterinary Medical Terminology

Angela Taibo
Wiley Blackwell, 2014, £43.99 656 pp (Kindle edition £41.79)
ISBN 978 1 11852 748 1



This first edition of *Veterinary Medical Terminology* aims to introduce the novice veterinarian to the language and basic terminology used in veterinary medicine. Each medical word is broken down into syllables to enable the student to understand the meaning of the word before using it in clinical practice. For example, 'Cardiology – study of the heart', 'Dermatitis – inflammation of the skin'. These definitions are discussed in the text and then summarised into tables to enhance the student's learning experience. Common medical abbreviations are also summarised, which is extremely useful for those beginning their careers who do not wish to ask busy clinicians to define what seems like obvious terminology.

The book first introduces the terminology used for each body system, with a primarily small animal (dog and cat) bias, before introducing the common terminology for other species including the horse, ruminants, swine, exotic and finally laboratory animals. Basic terminology for veterinary anatomy and common veterinary procedures are also introduced and these are frequently illustrated by photos and diagrams. The author writes in easily understood and concise language, and the division of text with colour and text boxes make it a very readable book for students.

New concepts are gradually introduced and are reinforced by exercises and review questions, which are available both at the end of each chapter and online. 'Technical tip' text boxes ask the reader brief questions to check their understanding and illustrate common student misunderstandings of medical terminology. Case studies are also used to illustrate the correct use of veterinary terminology and to introduce the student to real-life examples of clinical practice. The availability of online resources from the textbook such as images, flashcards and even crossword puzzles provides a superb resource both for students and teachers of veterinary medicine. In addition, the excellent index enables readers to use the book as a quick reference for unknown medical terminology.

As a slight criticism, terms are occasionally over simplified and this may confuse students as they gain more experience and knowledge. In addition, images often do not best illustrate the lesions described in the text and could be replaced by histology images or better quality gross photos.

Overall, though, this text is a good workbook for first and second year veterinary students and would be a useful reference for both older students and teachers of veterinary medicine.

Clare Muir
Senior Resident in Anatomic Pathology
Bridge Pathology Ltd, Bristol

Lymph Node and Spleen Cytohistology

Andrew S Field and William R Geddie (editors)
Cambridge University Press, 2014, £110, 273 pp
ISBN 978 1 10702 632 2

As a junior pathologist, your first foray into haematopathology can be intimidating. Combining that with cytology, an equally challenging and at first seemingly esoteric specialty, can compound the problem. However, a good book can alleviate the anxiety and prepare you to tackle that difficult case while facilitating your learning along the way.

This book, part of a series entitled 'Cytohistology of Small Tissue Samples' sponsored by the Papanicolaou Society of Cytopathology, sets out to offer an edifying guide to lymph node biopsy, from the initial patient assessment through to sign-out. Written by two experienced cytopathologists, its 273 pages are packed full of information and are broken down into diagnostic sections, with an engaging aesthetic suited to the visual learner including high-quality, colour images and comprehensive tables. Those who wish to know more about the systems and processes of cytohistology are well catered for, with a whole section dedicated to laboratory protocols and ancillary techniques. Helpfully, throughout the text there is also a focus on identifying and addressing or avoiding problems and pitfalls, which is something every pathologist has to keep in mind. Each disease is also discussed with clinical and, where appropriate, radiologic findings, to assist you with putting all of your cytohistologic findings into context.

One aspect we thought we would find particularly useful was an algorithm that guides you to a diagnosis based on recognition of cell-types and their relative predominance in an individual

smear. Although this is a nice attempt, we felt that its descriptions (and thus one's interpretation) was subjective, or at least would require significant previous experience and would therefore be difficult to reproduce and apply. Also, the tables are expansive and all encompassing, rather than offering summarisation. They therefore appear long and overcomplicated, which can deter you from taking full advantage.

Paediatric lymph node pathology is also covered and, as the title suggests, the spleen, although the section devoted to this is rather small. If you find yourself with a complex splenic case then you may need to utilise an additional reference. Another potential downside is that although a DVD of the images is provided, there didn't appear to be any accompanying annotations so you will need to have a copy of the textbook to hand. It seems like a missed opportunity in the digital age not to capitalise on the book's accessibility by making the text and images easily available online for remote access.

Overall, this is a very detailed book with an abundance of useful information. However, we felt that it did not highlight 'take-home messages' readily enough and is more suitable as a reference manual for the experienced cytopathologist than a trusty 'bench book' for the 'everyday' pathologist in training and beyond.

Dr Sidonie Hartridge-Lambert, ST1 Histopathology
Dr Sabine Pomplun, Consultant Cytopathologist
University College Hospital NHS Foundation Trust, London

The Poisoner: the life and crimes of Victorian England's most notorious doctor

Stephen Bates
Duckworth Overlook, 2014,
£16.99, 342 pp
ISBN 978 0 71564 750 9

Everyone has bad days but very few, I hope, experience one like Dr John Harland's *diem horribulus* as described in this darkly entertaining history of Victorian murder and medicine.

Harland is said to have presided over "one of the most shambolic post-mortems that can ever have been held". After forgetting his instruments, Harland allows the murder suspect to be present at the drunken, bar-room autopsy and so the latter was able to nudge the poisoned stomach contents onto a chair. Later the murderer arranges for a jar of internal organs to be knocked over before they can be examined. These organs were destined for "the father of forensic pathology", Professor Alfred Swaine Taylor, who is a star witness in the life and death courtroom battle that ensues.

The post-mortem nudger, this spiller of organs – 'The Poisoner' in the title, Dr William Palmer – was described by Charles Dickens as "the greatest villain who ever stood trial at the Old Bailey".

'Dickensian' is certainly a description that could be applied to this depiction of Palmer's squalid life, murdering friends and family, scuttling between bookies and moneylenders, and suffering a gallows death before a baying mob.

Like Dickens, this book shows us a society ill at ease with the rapid pace of technological and social change. People were genuinely shocked that someone supposedly 'respectable' could use a new technology, in the form of strychnine, to murder his best friend, for which he was convicted. Palmer was also strongly suspected of murdering his wife, children, brother, mother-in-law and others. It appears he took advantage of another innovation, life insurance, to maintain his gambling debts by insuring and then murdering family members for the dividends.

At the book's conclusion, the author calls on our own College President, Dr Suzy Lishman, to review the evidence and analyse the techniques used by some of the pioneers in her field. Apart from the shambolic nature of the post-mortems, Dr Lishman finds that her predecessors experimented on different animals (so that no genuine like-for-like comparisons could be made), contaminated samples and baffled the jury. This leads Dr Lishman to find the testimony of the housemaid the most convincing: "I would have so much more trust in a lay person's evidence in those circumstances".

In Palmer's actual trial, the housemaid is sneered at and told a court would never "take the word of a servant over an expert". It seems we have made some social, as well as scientific progress, since Palmer's trial and execution; at least I hope so.

As well as being an entertaining 'true crime' book, *The Poisoner* gives readers an interesting glimpse into mid-Victorian society, medicine in general and forensic pathology in particular.

Edward Davie
Public Affairs Officer
The Royal College of Pathologists

COLLEGE SYMPOSIA

September 2015

Digital Pathology Symposium

Thursday 24 September 2015

6 CPD credits

To be held at Norcroft Centre, University of Bradford, West Yorkshire, BD7 1DP

This symposium aims to understand the field of diagnostic digital pathology in those countries that have 'embraced' it, and to examine how it compares with the UK experience and how we may promote its adoption where applicable. A plenary talk will present the wider context of digital healthcare in which cellular pathology services will need to operate. The experience of diagnostic digital pathology elsewhere in Europe and in the USA will be presented, as will ongoing experience of UK-based digital pathology including that in veterinary histopathology. The day will provide an overview of the logistical requirements of digital pathology implementation, including the need for interoperability for effective IT implementation. The meeting will conclude with a panel discussion, with the aim of identifying the next steps towards implementation of diagnostic digital pathology in the UK.

December 2015

Dermatopathology Study Day

Friday 4 December 2015

5 CPD credits

To be held at The Kings Fund 11-13 Cavendish Square, London, W1G 0AN

This update day focuses on several problem areas encountered in routine dermatopathology practice. The talks are aimed primarily at general pathologists with an interest in dermatopathology and will cover a range of areas including melanocytic lesion pathology, pseudolymphomas, adnexal neoplasms, blistering disorders and alopecias.

February 2016

Liver Biopsy in the Assessment of Medical Liver Disease

Monday 29 February 2016

5 CPD credits

To be held at The Royal College of Psychiatrists, 21 Prescot Street, London E1 8BB

This course will provide a practical diagnostic approach to reporting medical liver biopsies, focusing on the importance of clinico-pathological correlation in assessing common patterns of liver damage. Recommended for senior trainees in pathology and hepatology and consultant histopathologists and gastroenterologists who are regularly involved in liver biopsy assessment (without necessarily working in a liver unit).

May 2016

Combined RCPath/BNS Neuropathology/ Neuro-Oncology Meeting

Wednesday 11 May 2016

6 CPD credits

To be held at The Kings Fund 11-13 Cavendish Square, London, W1G 0AN

This conference has been designed to correspond with the release of the latest update of the WHO classification of CNS tumours. The day will provide a practical approach to the diagnosis of CNS tumours, focusing on the interpretation of new molecular tests and their integration into the overall classification of the patient's tumour.

To see programmes in full and get online booking discounts, please visit www.rcpath.org/meetings/college-conferences
Alternatively, fill in the application form on the following page or contact Michelle Merrett, Events Manager, on 020 7451 6740 or michelle.merrett@rcpath.org
Further meetings are constantly being arranged, so please visit our website regularly for details.

Conference application form and proforma invoice

Surname:..... Initials:..... Title:.....

Address:.....

.....

.....

Postcode:..... Specialty:.....

Telephone:.....

Fax:.....

Email:.....

Place of employment (if different from above):.....

.....

Dietary/other special requirements::.....

2015 REGISTRATION FEES

Please tick the appropriate registration fee.

Concessions = trainees, students, nurses, IBMS and retired members.

Early booking = one month prior to the event date.

2015 one-day events

Early bookings: Members/Fellows £180 ☐ Concessions £95 ☐ Non-members £250 ☐

Late bookings: Members/Fellows £210 ☐ Concessions £125 ☐ Non-members £280 ☐

2016 one-day events

Early bookings: Members/Fellows £185 ☐ Concessions £99 ☐ Non-members £260 ☐

Late bookings: Members/Fellows £215 ☐ Concessions £130 ☐ Non-members £290 ☐

Conference title:.....

Total payment enclosed £.....

PLEASE NOTE:

Confirmation of attendance can not be given until full payment or guarantee of payment in the form of a purchase order is received by the RCPath conference department in advance of the event date.

Cheques should be made payable to The Royal College of Pathologists – please note that cheques should be in £ sterling drawn on a UK bank. Cancellations are subject to a £20 administration charge. No refunds will be made for cancellations notified within seven days of the event, but substitute delegates will be accepted at any time.

If you are forwarding a copy of this application form to your finance department for payment please ensure a copy is faxed to the conference department on 020 7451 6701 to reserve your place and that they quote the title of the conference and your full name on all cheques or payment advice slips.

Please copy and return this form to the RCPath Conference Department.
Tel: 020 7451 6715 Fax: 020 7451 6701 Email: meetings@rcpath.org

Supporting quality in pathology services

One of the objectives of The Royal College of Pathologists is to promote excellence in the practice of pathology and to be responsible for maintaining standards, to the benefit of the public.

From time to time, healthcare organisations will have concerns about:

- an individual's performance
- patient safety
- aspects of delivery of a pathology service.

The College recognises it has a role in assisting healthcare organisations in these circumstances to:

- evaluate a service or an individual's practice, where concerns have been raised
- discover whether problems do exist, and if so, in which areas
- support healthcare organisations in implementing standards
- provide a source of advice and 'signposting' for assistance where the College cannot itself directly respond to the request.

Invited reviews provide an independent perspective where concerns are raised with regard to the standards of practice of an individual pathologist(s) or a pathology service. Informal requests for advice may be made by telephone to the Professional Standards Department on 0207 451 6736 / 6732. Formal requests for an invited review must be made in writing by the Medical Director or Chief Executive Officer of the healthcare organisation. Find out more about The Royal College of Pathologists' invited reviews service at wwww.rcpath.org/professional-standards/performance or email professionalism@rcpath.org

Invited reviews may be undertaken if the problem relates to:

- concerns about the performance of an individual pathologist
- concerns about the overall quality of a pathology service or department, for example, as a result of a merger of departments, the creation of pathology networks, management difficulties, or staffing issues.

Legacies

The objectives of the College are to advance the science and practice of pathology, to educate the public in matters relating to pathology and to promote study and research work in pathology and related subjects and publish the result of such study and research. Financially, the College aims to match activities to projected income. The College is funded from subscriptions, examinations and related fees, investment income, grants from outside bodies and charitable donations.

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

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

The College undertakes many educational initiatives. We are actively undertaking an outreach programme that spreads the awareness of pathology throughout the UK and abroad. No other UK college has committed so much to the future of our profession in terms of time and resources. This will promote the importance of pathology to the grass roots of this country through schools, colleges, hospitals and many other sites where the general public can have access to important healthcare information. If we are to safeguard the future of our profession in the face of increasing competition from other medical and science career opportunities, it is vital that we commit ourselves to the promotion and awareness of pathology, and continue to train our young professionals to the very highest standards.

This public engagement programme will require financial support from the College for many years to come and we hope very much that we can build upon the tremendous support you have already given and ask if you would consider leaving a legacy.

Additions to your existing will can be made using a 'Form of codicil', printed on the following page. Please note that witnesses should be present when you sign the form, but it should not be witnessed by a College member or the spouse of a College member. As a general point, we always recommend consulting a solicitor or qualified will-writer before making a will; they should give you all the legal and tax advice that you require.

If you are considering including a legacy to the College in your will, we would very much appreciate being informed of your generous act. To inform us of your bequest or for specific advice on legacies to the College, please contact me.

Daniel Ross
Chief Executive
020 7451 6789
daniel.ross@rcpath.org

Form of codicil

(Please photocopy and complete in block capitals)

I .....(name) of .... (address) declare this to be a Codicil which I make this ..... day of ..... 20..... to my Will which bears the date ..... day of .....(month) .....(year).

I give to The Royal College of Pathologists ('the College'), registered charity number 261035, the sum of £..... (amount in words) ..... free of all taxes whether payable in the United Kingdom or in countries overseas for the general purposes of the College and I declare that the receipt of the Honorary Treasurer for the time being of the College shall be sufficient discharge to my executors.

In all other respects I confirm my said Will. In Witness thereof I have hereunto set my hand the day and year first written above.

Signed by the Testator/rix: ..... (signature) as a Codicil to his/her last Will in our joint presence and by us in his/hers.

FIRST WITNESS: .... (signature of first witness)

Name and address: .....

.....

.....

SECOND WITNESS: ..... (signature of second witness)

Name and address: .....

.....

.....

Pathological Society of Great Britain and Ireland

Pathological Society
Understanding disease

The Pathological Society of Great Britain and Ireland offers several grant schemes, namely:

SCHEME	DEADLINES
EDUCATIONAL GRANTS/COMPETITION	
Bursaries for undergraduate elective or vacation studies (available to Associate Undergraduate Members of the Society)	**14 February & 28 April**
Educational Grant	**1 April & 1 October**
Intercalated Degree (available to Associate Undergraduate Members of the Society)	**31 March**
Seminars for Students (available to Associate Undergraduate Members of the Society)	**Open**
Undergraduate Essay Competition	**1 September**
Pathological Society Meeting Bursary for Undergraduates (available to Associate Undergraduate Members of the Society)	**variable**
RESEARCH GRANTS	
Career Development Fellowship	**1 April**
Equipment Scheme	**1 April & 1 October**
International Collaborative Award	**1 October**
Pathological Society/Jean Shanks Foundation Pathological Research Training Fellowship	**1 October 2015**
PhD Studentship	**1 October***
Sino-European Collaborative Award	**1 October**
Small Grants	**1 April & 1 October**
Visiting Fellowships	**1 April & 1 October**
OTHER GRANTS	
Open Scheme	**1 March, 1 June, 1 September & 1 December**
Pathological Society Meetings Bursaries	**31 May**
Public Engagement	**1 March, 1 June, 1 September & 1 December**
Travel & Conference Bursaries	**Open**

***New deadlines**

Full details are available on our website: www.pathsoc.org or from:
Miss Julie Johnstone, Deputy Administrator, Pathological Society of Great Britain and Ireland
julie@pathsoc.org

Pathological Society of Great Britain and Ireland forthcoming meetings

Pathological Society Residential Training School for Diagnostic Molecular Pathology
23–25 September 2015
Park Plaza Hotel
Nottingham

2016 Winter Meeting
7–8 January 2016
Guoman Tower Hotel
London

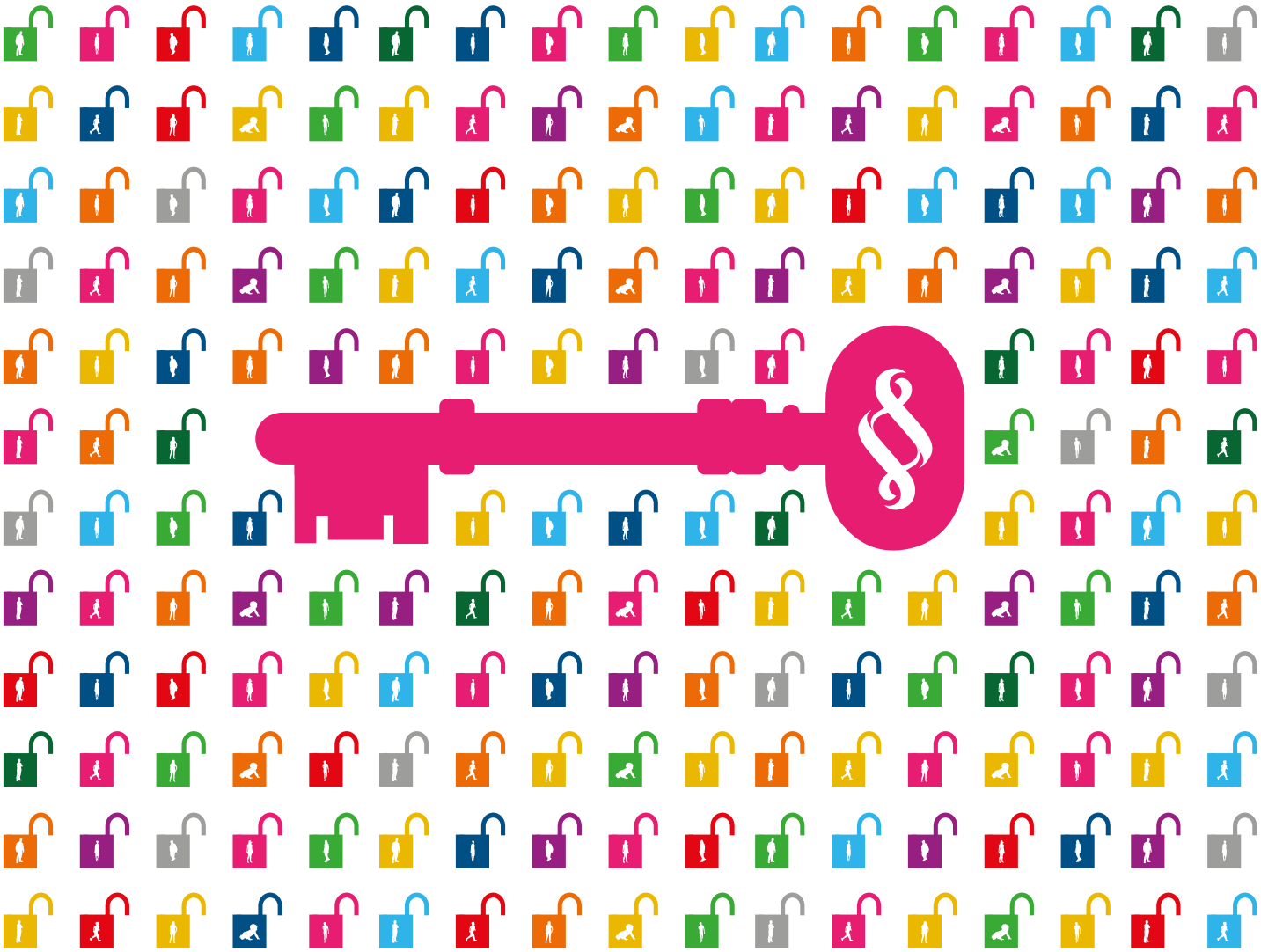
2016 Pathological Society Winter School
1–5 February 2016
London

Nottingham Pathology 2016 Joint BDIAP/Pathological Society Meeting
28 June–1 July 2016
East Midlands Conference Centre
University of Nottingham

www.pathsoc.org

National Pathology Week

2–8 November 2015



Pathology:
the key to your health

www.ilovepathology.org