LabMedNews

Association for Laboratory Medicine

AUGUST 2025

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Association for Laboratory Medicine

AUGUST 2025

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MESSAGE FROM THE CEO

VICTORIA LOGAN
Chief Executive Officer

I'd like to highlight recent contributions LabMed has made to national conversations and collaborative initiatives that shape the future of our profession and the wider health system.

Firstly, we welcome the publication of Fit for the Future, the NHS 10-year plan for England. LabMed has made a strong and public case for Laboratory Medicine to be embedded at the heart of this transformation. From digital diagnostics and AI to Neighbourhood Health and point-of-care testing, our work underpins prevention, integration and patient empowerment. See page 5.

Our new president Ian Godber responded quickly on publication day saying, *"Diagnostics underpin around 80% of clinical decisions. That means laboratory medicine is not just part of the NHS's future it is the foundation of it. The plan's five big bets for innovation, from genomics to AI, rely on the scientific leadership our profession provides."*

Secondly, new guidance on appointing consultant clinical scientists in microbiology and virology has been jointly published by LabMed, RCPath and the British Infection Association. With growing workforce pressures, this guidance will support organisations to recruit high-quality candidates into consultant roles with confidence. It offers step-by-step advice, tools and templates, while making the case for fair pay, parity of esteem and career progression for clinical scientists. We're proud of the Microbiology Professional Committee's role in initiating this work and grateful to our partners for their collaboration. See page 7.

Finally, our strategic partnerships continue to grow. In 2024, LabMed launched a new collaboration with Roche. Together, we are championing system innovation, sustainability and access to diagnostics. Our Ahead of Care webinar series with Roche launched with a webinar on Social Value and continues this autumn, with sessions on AI, neurology and mass spectrometry. These partnerships help strengthen our profession's voice and impact. See page 19.

As always, thank you for your continued engagement and support. We look forward to seeing many of you at the Leaders Summit at IBMS Congress in September.

LABORATORY MEDICINE MUST BE AT THE HEART OF THE NHS 10-YEAR PLAN

The publication of *Fit for the Future*, the NHS's 10-year health plan for England, marks an important moment to fundamentally redesign how we deliver care. This is an opportunity we must not miss. If we are serious about building a health system that's fit for the future, then we must place laboratory medicine at the centre of that transformation.

The five "big bets" set out in the plan – genomics, digital health, AI, prevention and neighbourhood-based care – are all areas where our profession is already providing leadership. But leadership alone isn't enough. We now need investment, integration and recognition of diagnostics as the foundation of modern healthcare.

LabMed made a strong submission to the plan's consultation. We called for:

- **Laboratory medicine to be embedded in new patient pathways**, ensuring diagnostic safety and equitable access for all.
- **Expansion of point-of-care testing (POCT)**, but with robust governance frameworks led by laboratory professionals.
- **Investment in digital infrastructure**, to enable joined-up data, support AI-driven diagnostics and provide patients with better access to their results.
- **Recognition of the clinical leadership of scientists**, including expanding prescribing rights, to help address persistent workforce gaps and tackle the growing backlog.
- **Development of a digitally skilled and adaptable workforce**, ready to deliver the diagnostics of tomorrow.

There is also the need for **standardisation and interoperability** across digital systems. Without it, the ambitions for the NHS App or Health Companion will be seriously limited. We also need to look beyond hospital walls – community-based phlebotomy, patient-centric sampling, improved sample logistics and patient-facing diagnostic tools are all essential if we want to deliver care closer to home.

Crucially, all of this requires **sustainable investment**. You can't expect cutting-edge diagnostics or equitable access without funding the infrastructure that delivers it.

Though *Fit for the Future* applies to England, we recognise that the devolved nations are pursuing similarly ambitious reforms. That alignment is encouraging. At LabMed, we remain committed to supporting diagnostic excellence across the whole of the UK.

We are entering a new era – community-based, digitally enabled, prevention-first care. But it won't be safe or effective unless laboratory medicine is part of the core architecture. Our call to NHS England Integrated Care Boards and Trusts is clear: put diagnostics where they belong – right at the centre of system planning – and make sure we are appropriately funded and resourced to deliver the future of healthcare.

IAN GODBER

President

RESEARCH AND INNOVATION GRANT APPLICATIONS OPEN

Are you working on a ground-breaking project that could shape the future of laboratory medicine? The Association for Laboratory Medicine's Research and Innovation Grant is now open for applications — but don't delay, the deadline is **5 September 2025.**

This funding opportunity is designed to support scientific innovation, clinical research and practice-enhancing projects across all disciplines of laboratory medicine. Whether you're an early-career scientist or a seasoned professional, these grants can help bring your ideas to life and support real-world change in diagnostics and patient care.

What's on offer

Grants of up to £8,000 are available for projects that demonstrate:

- Scientific and/or clinical innovation
- Clear potential impact on patient outcomes and lab practices
- Strong methodology and deliverables
- Contribution to the wider body of knowledge in laboratory medicine

Submissions are welcome from individuals or teams working within the UK in any area of laboratory medicine. Full eligibility criteria and guidance are available on the LabMed Research and Innovation Grant page.

Meet last year's winners

In 2024, LabMed proudly funded three outstanding projects that pushed the boundaries of clinical science and diagnostics:

Emma Miler – Norfolk and Norwich University Hospital
Emma, principal clinical biochemist, is expanding her research into the predictive value of biomarkers such as FGF-23 and NT-proBNP in patients undergoing major vascular surgery. Her aim is to support better pre-operative risk assessment and improve post-surgical outcomes, combining laboratory expertise with real-world clinical application.

Lindsay Graham – NHS Tayside Blood Sciences
With a background in neuroscience and immunoassay development, Lindsay is using her grant to develop a mass spectrometry assay for phosphatidylethanol (PEth) — a biomarker for long-term alcohol use. Her project explores its relevance in steatotic liver disease, working closely with hepatology teams to improve diagnostic precision in patients with Type 2 Diabetes.

Adam Pattinson – University of East Anglia / NHS
A microbiology STP trainee, Adam's research focuses on biomarker strategies for risk assessment in kidney transplantation. His comparative proteomics study will help evaluate functional immunity in immunosuppressed patients, supporting more tailored and effective treatment planning in transplant care.

These projects demonstrate how LabMed grants help bridge science and practice — supporting innovations with real potential to impact patient care.

SUPPORTING CONSULTANT APPOINTMENTS IN MICROBIOLOGY AND VIROLOGY

Why we created new national guidance

As chair of the Microbiology Professional Committee (MPC) at LabMed, I'm often contacted by departments who want to appoint a clinical scientist into a consultant role – but aren't sure where to start. They know it's possible, they know the workforce needs it, but the process can feel unclear or inconsistent.

That's exactly why we've just published new national guidance to support the appointment of Consultant Clinical Scientists in microbiology and virology. This has been a real team effort between LabMed, the Royal College of Pathologists (RCPath), and the British Infection Association (BIA) and we are very proud of the result. The 2025 guidance is clear, practical, and up-to-date with how the consultant workforce is evolving.

With vacancy rates for consultant microbiologists and virologists sitting around 15-20%, this guidance couldn't be more timely. It covers everything from writing job descriptions to preparing for interviews, and it tackles specialty-specific issues that we know departments grapple with. We've made sure the advice is rooted in fairness, consistency, and quality – so that the best candidates get through, and are recognised appropriately.

This actually all started during an MPC meeting, where we discussed the need to revisit and improve the existing RCPath guidance. A chance meeting with Bernie Croal – RCPath president and a former LabMed president of course – at a House of Lords reception was the catalyst. We realised we shared the same concerns and goals, and the collaboration took off from there.

One of the key things we wanted to address was parity – whether it's banding under Agenda for Change, job planning alongside medical consultants, or access to ongoing development and leadership roles. These are essential parts of any consultant post and clinical scientists should have a clear route to access them. We've also included helpful resources like job description templates, assessor support, and practical recruitment advice from the College.

My hope is that this guidance gives departments the confidence and tools to recruit excellent clinical scientists into consultant roles – especially those coming through the Higher Specialist Scientist Training (HSST) programme. Many are already stepping into senior leadership, and they deserve a structured, recognised process that supports them properly.

If your department is looking to recruit, I strongly encourage you to take a look.

ROB SHORTEN

BRAND, BIDS AND BICYCLES: KATH HAYDEN LOOKS BACK AT HER TIME AS PRESIDENT

LabMedUK25 marked the end of an era, we bid farewell to outgoing president Kath Hayden, who formally handed over the role after steering the Association through a pivotal period of transformation and growth. From overseeing a bold rebrand to securing the prestigious EuroMedLab 2027 for London, Kath's leadership has left a lasting impact on LabMed. In this interview, she reflects on her journey – from early career involvement to the presidency – and shares the lessons, proudest moments and hopes she carries into the future.

1. What initially inspired you to take on the role of president?

The Association has been a constant throughout my career, supporting me at every stage. My journey began as a junior representative on the regulating committee (the forerunner to the FCS Trade Union), and I benefitted from training support through an educational bursary, a scientific scholarship and various courses. Over time, I took on roles at both regional and national levels – but I never imagined I would one day become president. It was only after conversations with a couple of colleagues that I decided to apply. They helped me realise that my experience could contribute meaningfully to shaping an Association ready for the future.

2. What achievement are you most proud of during your presidency?

Winning the bid to host EuroMedLab 2027 in London, 20 years after it was last held in the UK in Glasgow in 2005. This is a very exciting opportunity for us to showcase some of the fantastic work by members of our Association on an international stage.

3. What were some of the biggest challenges in your time?

There were definitely some challenges to navigate in the rebranding to the Association for Laboratory Medicine! This is a change that I am also hugely proud of as it better reflects the breadth of membership of our Association and has already led to increased recognition nationally and internationally.

4. How has LabMed evolved during your time as president?

We have evolved into a more inclusive and sustainable organisation with the input of our EDI and Green Champions. Changes to our processes have increased transparency and ensured fair access to resources and awards, with further improvements to our governance already underway.

5. Is there a fun moment or memory that stands out?

Having to cycle the 10 km from our hotel to Brussels Expo for EuroMedLab25 with Ian and Sarah during the train strike was definitely a fun (and slightly hazardous) moment!

6. What did you learn about yourself?

That it is worth pushing yourself out of your comfort zone as it opens up opportunities that you would never have had otherwise, and to trust your instincts as if something doesn't feel right then it probably isn't.

7. What advice would you give to Ian (and future presidents of LabMed)?

I know Ian will do a fantastic job as president in taking LabMed forward, so my advice would be to take time to enjoy it along the way. For future presidents, I would just say to appreciate that they have something to offer as the work that we do every day in the NHS or elsewhere definitely equips you for the role.

EuroMedLab 2025 Brussels to Expo by bike

8. What are your hopes for the future of LabMed?

My hopes are that it continues to deliver what it is great at, which is the science and education, whilst continuing to evolve to address emerging areas such as AI and how we can highlight the importance of laboratory medicine's role in the move towards more patient-centred care.

LABMED ANNUAL GENERAL MEETING

Annual report 2024 and the president's report

SARAH GLOVER
Company secretary

The 71st year of the Association was the first where we proudly celebrated our new name the Association for Laboratory Medicine (LabMed). Our vision is to advance health and wellbeing through excellence in laboratory medicine, science and innovation.

We held a very successful LabMedUK24 in Brighton and LabMed continues to go from strength to strength. We have improved access to events for members, with 30 regional bursaries, as well as free access to in person and virtual regional events, helping to increase inclusivity. We have developed new clinical resources, including a renal resource hub and the Lp(a) taskforce report. The Laboratory Medicine Learning Academy and Mentoring Programme are now in full swing.

We responded to the NHS England 10-Year Health Plan, advocating for the role of laboratory medicine in healthcare transformation. With the assistance of our Green Champions Group, we played a key role in the NHS's sustainable pathology work. A new initiative was introduced with the Royal College of Pathologists where we participated in a global education project through a THET-funded training project in Ghana, Kenya and Nigeria.

We also celebrated the 20th anniversary of LabTestsOnline UK. Usage of the site has grown significantly due to integration with the NHS App in England, with the site now achieving 900k active users a month (or 2.5 million views a month).

At the end of 2024 we were delighted to announce the success of our bid to host EuroMedLab 2027 in London.

All of this hard work has supported a growth in membership of approximately 4.2% over the course of the year (11.2% increase since 2020).

At LabMedUK25 we announced the launch of our next five-year strategy. Our goals for 2029 are to:

- increase the digital readiness of laboratories and clinical laboratory professionals to improve the preparedness of members to harness advanced technologies such as coding and machine learning

- improve standards and guidance to ensure best practices in laboratory are applied consistently to improve patient care including steering appropriate testing strategies and diagnostic stewardship
- increase the visibility of clinical scientists as leaders in healthcare and core contributors to national policy-making, research and innovation as well as educators of patients and the public about diagnostic testing including looking at how to best develop our clinical leadership offering
- develop the clinical scientist and medical workforce as essential contributors to NHS transformation to meet the growing healthcare needs of patients including working with others such as the Academy for Healthcare Science to enable prescribing rights for registered clinical scientists.

To support to the effective functioning of LabMed, we are planning to update and combine our governance documents following recommendations to Council. A Task and Finish group formed from members of Council has been working on these, with advice from a company that supports member associations with their governance. We are planning to hold an Extraordinary General Meeting in November 2025 to present proposals to members for approval. Further details will be provided in due course.

Accounts and balance sheet for 2024

We have continued to keep close management control of our finances.

The director of finance reported that the end of year position for 2024 showed a surplus of approx. £31 k. Our expenditure did exceed our income, however the performance of our investments resulted in an overall positive picture at year end.

Of note, 2024 saw the full implementation of the Laboratory Medicine Learning Academy and we awarded £32.5k in grants.

We continue to diversify our income streams so spreading any risks. We continue to improve our reporting and governance via our Finance and Risk Committee and risk register.

The accounts have been audited and, based on the information provided, satisfied our auditors H W Fisher LLP.

Member benefits and subscription fees for 2025

In recent years, the Association has not increased fees in line with inflation. Meanwhile we have been incurring higher running costs, including delivering additional member benefits. The total amount generated from membership subscriptions is currently 28% of our total income. In order to close this gap, the following recommendations were made by the director of finance and the Association Council, that from 1 January 2026:

- we increase fees by 5.9% for those in the member category (to £270 per annum, equating to £22.50 pcm)
- we maintain the £90 discount for those who qualify (so £180 per annum, equating to £15 pcm)
- the fee for the legacy Federation category be brought in line with those on the Member discount rate (so increased to £180 per annum).

These recommendations were agreed by the members present.

Election of officers, non-executive director and a national member

Following an applications process led by the Nominations Committee, supported by a specialist recruitment agency, we announced Council's appointment of Fen Sung to non-executive director.

Inesa Iefimova has been elected to become a national member from the AGM, as Dilini Peiris comes to the end of her term of office.

All our honorary officers remain in post for at least the coming year, with the exception

of Alexandra Yates (director of scientific affairs) and Kamaljit Chatha (director of publications and communications) who reached the end of their terms of office.

We announced the unopposed election of David Gaze as director of scientific affairs, but the position of director of publications and communications remains vacant. However, a recruitment campaign is now underway.

It was nice to see such great appreciation from the members present as we thanked outgoing postholders Alexandra, Kamaljit and Dilini. Thanks were also relayed to Monika Jankute as outgoing chair of the trainees committee.

Membership awards and president's shield

We are delighted to announce the following awards:

Emeritus member of the association: Paul Newland, nominated by the North West Region and agreed at the AGM.

President's Shield: Hazel Borthwick for her contributions to education, training and workforce development.

Thank you

Thanks to all of our members for their continued contributions to LabMed. We look forward to working with our members to further shape the future of laboratory medicine over coming years.

IAN GODBER LOOKS AHEAD TO THE LEADERS SUMMIT 2025

The first LabMed Leaders Summit took place in 2023 at the IBMS Congress in Birmingham bringing together professionals from across the UK to explore the evolving challenges and opportunities in our field. It was an energising day of shared learning, strategic thinking and relationship building and I'm delighted that we're returning to the ICC Birmingham this September for another packed programme.

This year's Summit offers a varied programme designed to support those leading, or aspiring to lead, in laboratory medicine. We'll open with insights on resilience in organisational leadership from former NHS Trust chair Dennis Dunn MBE, before diving into key strategic themes such as digital readiness, governance and the value of EQA in improving clinical decision-making and patient safety.

In the afternoon, we turn to the evolving role of artificial intelligence in healthcare. Sessions will explore both its exciting potential, particularly in cancer research and personalised therapy and the risks of algorithmic bias and its impact on health equity. We'll also tackle the pressing issue of sustainability, asking how diagnostic stewardship and better test utilisation can contribute to the NHS's Net Zero ambitions.

So wherever you are in your career path, whether you're a senior manager, consultant scientist, or early in your leadership journey, this Summit offers a unique opportunity to connect with peers, share challenges and shape the future of our profession. I'm very much looking forward to welcoming you and continuing these essential conversations.

Make sure you book your place – see you in Birmingham!

LABMED NATIONAL AUDIT DAY 2025

Friday 28 November – Royal College of Pathologists, London

Join us for LabMed's National Audit Day 2025, a focused one-day event highlighting the latest national audits shaping laboratory medicine. This year's programme centres on audit findings in prostate cancer, testosterone testing, menopause and tumour markers, with a spotlight on how these insights are transforming diagnostic services and patient outcomes.

Why attend?

- Learn how audit outcomes are improving patient care and diagnostic service quality
- Engage in discussions with peers and national leads
- Browse poster presentations from audit teams across the UK
- Earn CPD to support your professional development

Ideal for clinical scientists, consultants, audit leads, trainees, quality managers and anyone involved in diagnostics or service improvement.

Book your place now.

Call for abstracts

Poster and oral presentation submissions are now open. Share your audit work and contribute to national learning.

Deadline: **5pm, Friday 19 September**

Read guidelines and submit here.

COULD YOU BE A FUTURE EXECUTIVE LEADER?

High Potential Scheme – applications open September 2025

The High Potential Scheme (HPS) is a national leadership development programme designed to build a diverse and inclusive pipeline of future health and care leaders. Applications are encouraged from healthcare scientists.

What the scheme offers:

- Targeted at Band 8a-8c staff around 5-8 years from an executive role
- Focuses on leadership potential, not just current experience
- Structured development through experiential placements, mentoring/coaching and formal learning
- Proven success: 70-80% of participants have moved into senior roles

Healthcare scientists are one of the priority groups, alongside AHPs and professionals in primary care. The scheme also strongly encourages applications from the BAME community.

With only 200 places available nationally, early awareness is key. We'll email members when applications open at the end of September 2025.

LABMED RESIDENTIAL TRAINING COURSE 2026
19–21 JANUARY | NOTTINGHAM

Advance your laboratory leadership and clinical science skills in three immersive days

WHAT YOU'LL LEARN

- Successful business case for strategic initiatives
- Developing tender specifications
- Building and managing laboratory networks

WHO SHOULD ATTEND

- Clinical scientists
- Lab managers
- NHS pathology teams
- Ideal for professionals stepping into leadership or service planning roles.

WHY ATTEND

- Learn from expert UK faculty
- Network with peers across disciplines
- Bursaries and member discounts available

Book now at labmed.org.uk

WELCOME TO OUR NEW MEMBERS

The Association is proud to introduce the following new members who have joined us since the last edition of *LabMed News*. Please extend a warm welcome to:

Muhammad Jalil Abbas, Specialist trainee in chemical pathology and metabolic medicine, The Freeman Hospital, Newcastle
Summer-Louise O'Connor Ajayi, Trainee clinical scientist, Northampton General Hospital, Milton Keynes
Diana Alahmad, Postgraduate researcher, University of Aberdeen, Aberdeen
Abrar Al-Ghailani, Resident, Oman Medical Specialty Board, Muscat, Oman
Aisha Al Shamakhi, Resident, Oman Medical Specialty board, Muscat, Oman
Charlotte Begley, Trainee clinical scientist, Southampton General Hospital, Southampton
Danai Chihoto, Senior medical scientist, Health Service Executive, Dublin, Ireland
Jade Derrick, Clinical scientist, UK Health Security Agency, London
Bavani Madri Polwatta Gallage, MTI Doctor (chemical pathology), Royal Surrey County Hospital, Guildford
Andrew Hopper, Specialty registrar, Royal Alexandra Hospital, Paisley
Jessica Jervis, Trainee clinical scientist, Liverpool Clinical Laboratories, Liverpool
Dylan Lanigan, Student, Queen's University Belfast, Ballymena
James O'Connor, Principal lecturer, Canterbury Christ Church University, Canterbury
Victoria Owen, Senior clinical scientist, Liverpool University Hospitals NHSFT, Liverpool
Mukhtadir Shaikh, Student, Swami Ramanand Teerth Rural Govt. Medical College, Maharashtra, India
Joshua Taylor, Clinical scientist, St George's NHS Foundation Trust, London
Gudmundur Sigthorsson, Doctor, Landspitali University Hospital, Reykjavik, Iceland

PUBLICATION DATES

LabMed News is published on the 15th of the month. To guarantee publication, please submit your article by the 15th of the preceding month (i.e. 15th September for the October 2025 issue) to: editor@labmed.org.uk

We aim to be as flexible as possible and will try to accept articles up to the 1st of the month to be published if space allows. Otherwise they will be held over to the next issue. If we are aware that articles are imminent, this gives us more flexibility and we can reserve space in anticipation. If in doubt, please contact: Gina Frederick, lead editor, via the above e-mail.

Advertising in LabMed News

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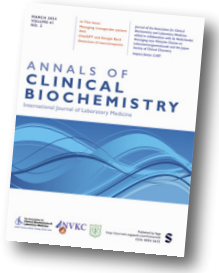
ANNALS OF CLINICAL BIOCHEMISTRY LATEST RESEARCH ARTICLES

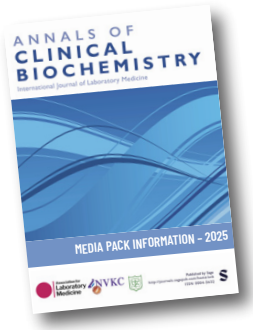


Check out these interesting new articles recommended for reading by the editors-in-chief of the *Annals of Clinical Biochemistry*:

Benchtop centrifugation: An effective method for reducing lipaemia associated interference in grossly lipaemic samples? - James L. Hall, Henry C. Carlton, Kate E. Shipman, 2025

Biochemical osteomalacia in adults undergoing vitamin D testing in the North-East of Scotland - Angus D Macleod, Mark J Bolland, Andrew Balfour, Andrew Grey, Josh Newmark, Alison Avenell, 2025

Click here to submit your work to the *Annals of Clinical Biochemistry.*



ADVERTISING IN ANNALS OF CLINICAL BIOCHEMISTRY

Promote your brand to a highly engaged audience of laboratory medicine professionals – advertising is now available in both the *Annals of Clinical Biochemistry* online journal and our member-wide emails. To find out more, contact Jason Brown, Advertising Manager, at jason@labmed.org.uk

UPCOMING EVENTS

Click on the event name to find more information and to book.

- **LabMed Scotland – 11 September 2025**
- **LabMed Northern Ireland – 19 September 2025**
- **LabMed TNY – 16 October 2025**
- **LabMed SWW – 22 October 2025**
- **National Audit Day – 28 November 2025**
- **Save the date – Trainees morning and Freddie Flynn afternoon – 27 November 2025.**

Please take the time to support your regional meetings, especially the in person events which provide a great chance to network and catch up with colleagues face-to-face.

All regional meetings are now provided to members free of charge and online meetings are available to members nationally.

Full details on all our events can be found here.

TRAINING SERIES

Please note we have made changes to the dates/times for the remaining two sessions in the series:

Organisational change

5 September 2025, 12pm – MS Teams

We will look at what organisational change is and the good practice we would expect from employers. We will look at how members can feed into these processes and how they do so alongside their local representatives. We will also incorporate some discussion around policies and Agenda for Change guidelines.

Register here.

National picture on pay and union negotiation

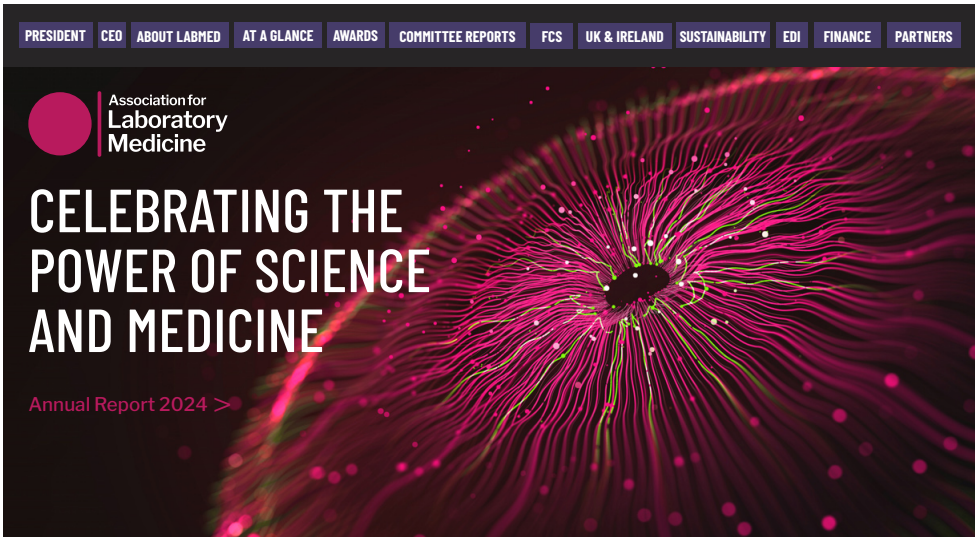
24 September 2025, 1pm – MS Teams

This session will provide an overview of national pay developments and legislative changes affecting members. We'll also discuss the implications of the new right to withdraw labour and what it may mean for future negotiations.

Register here.

MEMBERS' STATEMENT

Our statement to members issued in connection with the Union's annual return for the period ended 31 December 2024 as required by Section 32A of Trade Union and Labour Relations (Consolidation) Act 1992 can now be viewed here.



AHEAD OF CARE: LABMED AND ROCHE

In 2024, LabMed partnered with Roche Diagnostics to champion sustainable innovation and improve access to care across the UK healthcare system.

Now in its second year the partnership is looking at joint initiatives and knowledge-sharing. This includes the *Ahead of Care* webinar series, co-hosted by Roche and LabMed, which explores how laboratory teams can lead the way in delivering connected, patient-centred solutions.

Social value at the centre

The first session, *Driving Impact: Social Value for Laboratory Teams*, looked at a key shift in NHS procurement policy. With a new requirement that social value must account for at least 10% of all NHS contract award criteria, laboratory professionals need to be aware of how they can use this to drive meaningful outcomes for their communities. .

The webinar featured expert insights from Gerard Harkin (Roche Diagnostics), Dave Sweeney (NHS Cheshire and Merseyside), and Ashley Morgan (Social Value Portal). The discussion ranged from tackling local health inequalities to embedding sustainability into everyday decision-making and included real world case studies.

Looking ahead

The *Ahead of Care* series continues this autumn with a powerful line-up:

- **September** – *Digital Readiness and AI* with **Albino Trollo**, exploring how artificial intelligence can transform diagnostics and data use in the lab.
- **October** – *Neurology* takes centre stage with insights into how labs can better support early diagnosis and personalised care in neurological disease.
- **November** – *Mass Spectrometry* with **Joanne Bradley**, looking at how this technology is redefining precision in testing, from rare diseases to routine monitoring.

Each session highlights the critical role laboratories play not just in diagnostics, but in driving innovation across the patient journey.

Find out more

Go to labmed.org.uk/roche to access recordings of the past webinars and to find out about future ones.

Association for Laboratory Medicine

Roche

CONFERENCE REPORT

LABMEDUK25 ATTENDEE BURSARY REPORTS

Three LabMed members who attended LabMedUK25, with support from the Association's bursary scheme, share their reflections on the experience – each offering a personal perspective from a different day of the three-day event.

BIOCHEMISTRY TRAINING DAY

Micheál Ryan, Senior clinical biochemist, University Hospital Limerick, Republic of Ireland

The morning session provided attendees with an insight into the key elements required to design a research study and getting the study published. The use of the PICO and FINER frameworks were introduced as aids, to formulate a research question that is precisely defined and achievable.

An understanding of research ethics, its importance and the application process for ethical approval was also gained by attendees. An added bonus was the overview of clinical case reports and how to write an effective clinical case report (i.e. the art of being a good story teller).

The afternoon session opened with a highly 'absorbing' talk on subarachnoid haemorrhage which included the interpretation of CSF xanthochromia spectrophotometric scans (rulers and calculators were at the ready!). This was followed by the interpretation of electrophoretic scans for specialist protein assays including ALP isoenzymes, lipo-proteins and alpha1 antitrypsin phenotyping.

Effective research design and getting published

The attendees were provided with examples of potential studies and were asked (in groups) to apply the PICO and FINER frameworks to define an effective study.

One example included 'Investigation of the prognostic value of PCT vs CRP in sepsis outcomes'.

Abstracts from published studies were also shared and attendees were asked to evaluate the strengths and weaknesses of the study designs.

Research ethics

This presentation greatly helped attendees understand the process of ethical approval for a research study, the UK Policy Framework for Health & Social Care Research, and the use of the HRA decision tool, which helps to determine if a study requires approval from a Research Ethics Committee (REC).

Different studies were provided and attendees discussed if ethical approval was required in each case. It was highlighted that identifying the target journal and adhering to the manuscript submission guidelines for that specific journal are other key elements in order to get a study published.

The afternoon session was very much a change of tack and moved well beyond textbook learning. A presentation on investigation of suspected subarachnoid haemorrhage (SAH) and xanthochromia opened the session. Attendees were given an overview of SAH and its clinical presentation before being reminded of the revised national guidelines for CSF analysis in suspected SAH.

Attendees were then provided with spectrophotometric scan examples and were asked to interpret these using the interpretation revision tree provided. This was an excellent exercise, especially for those from laboratories that do not currently provide a CSF Xanthochromia testing service.

The next section of the training day focussed on specialist protein assays including ALP isoenzymes, lipoprotein electrophoresis and A1AT phenotyping. The worked examples that accompanied each of these talks will prove invaluable to attendees as they reflect on each of these specialist areas.

This was a very well organised training day and all the speakers must be highly commended. The diverse range of topics across the day greatly helped to keep attendees fully engaged. It provided an excellent networking opportunity as attendees worked in groups during the sessions which facilitated the sharing of information and experiences from different Laboratory settings.

The introduction of areas that would not be covered in the textbooks provided important learnings for trainees as they move through their training in clinical biochemistry and prepare for examinations.

Based on this experience, the training day at LabMedUK26 in Birmingham is certainly not to be missed!

TUESDAY HIGHLIGHTS

Elizabeth Fox, Clinical scientist, Leeds Teaching Hospitals NHS Trust

The Tuesday of LabMedUK25 at the prestigious Bridgwater Hall promised a great selection of topics including the importance of the laboratory report, machine learning assisted diagnosis and the 'avant-garde'. Also on offer was the collection of excellent posters showcasing the hard work of the laboratory medicine members and the fantastic trade show from our industry partners.

International award lecture

EFLM president Mario Plebani described how "the post-analytical phase of laboratory testing is increasingly recognised as a fundamental step in achieving quality and more effective use of laboratory information". In other words, a well-designed laboratory report can maximise the contribution of laboratory medicine to patient care by assisting clinical teams with decision making and reducing medical errors due to incorrect interpretation of laboratory data. We were introduced to the concept of personal reference intervals and clinical decision limits, which have the potential to increase the diagnostic performance of tests. There was a focus on interpretative comments and how these should be carefully structured and standardised to provide consistent good quality advice that is easy to understand. It was interesting to hear how the EFLM are currently working towards laboratory report standardisation through harmonisation of reporting units.

Steroid metabolomics for personalised diagnosis and treatment

Freddie Flynn Award winner and director of the MRC Laboratory of Medical Sciences Wiebke Arlt described her important work developing and validating a test that can differentiate malignant adrenocortical carcinoma (ACC) from benign adrenocortical adenoma (ACA) during the work-up of adrenal incidentaloma.
The urine steroid metabolomic profile test was developed using machine learning based data analysis to characterise differences in steroid metabolite excretion between ACC and ACA. The test was used in the multi-centre EURINE-ACT study which demonstrated that combining the urine steroid metabolomic profile, the tumour diameter and imaging characteristics increased the diagnostic accuracy compared with either test alone. Improved detection of ACC should shorten the time to surgery for patients with ACC, and help avoid unnecessary adrenalectomy in patients with benign ACA. The work has been published in the *Lancet* Diabetes and

Endocrinology and Dr Arlt is planning to make this test available to the NHS in the near future.

Transformative best practices of healthcare excellence as recognised by the UNIVANTS of Healthcare Excellence Award Programme

The UNIVANTS programme rewards collaborative projects which include a laboratory medicine component to achieve significant improvements in patient care. The name is derived from “unified” and “avant-garde” to reflect the collaborative and novel approach required to achieve the aims of the work. Today we heard from the three winning teams for 2025. The teams from Tenerife and France used timely measurement of biomarkers of traumatic brain injury to exclude mild traumatic brain injury and reduce both the time spent in the emergency department and the number of CT scans required by these patients. The team from Japan used a multidisciplinary approach incorporating hepatitis C serology results to increase the number of patients successfully treated for hepatitis C infection. The work is truly inspirational and gave food for thought as to how judicious use of laboratory testing can make big differences to patient safety, the patient experience, clinical outcomes and healthcare economics.

Thank you to LabMed for supporting my attendance with a Regional Educational Bursary. This was an excellent meeting with plenty of networking opportunities and all members should consider attending in 2026!

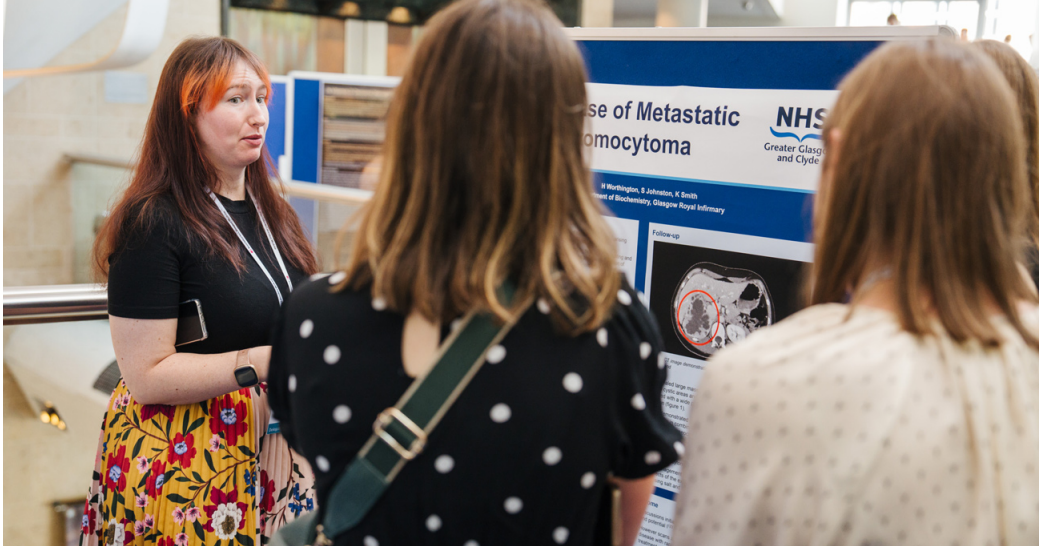
WEDNESDAY HIGHLIGHTS

Chris Stockdale, Clinical scientist, Birmingham Women’s and Children’s NHS Foundation Trust

Courtesy of a regional educational bursary I was able to attend the final day of LabMed UK at Bridgewater Hall, Manchester.
The day featured plenary lectures, sessions on inherited metabolic disease, POCT, health inequalities, ‘common analytes’ and finished with the Clinical Cases session.

Foundation award lecture: Medical Freakonomics

This was delivered by Eric Kilpatrick (Manchester) on the topic of research in Laboratory Medicine. Professor Kilpatrick encouraged the audience to not be afraid of asking daft questions, to not assume a topic has already been studied and to investigate unusual findings or promising leads.
This approach has led to important publications in areas such as the influence of thyroid status on cystatin C and strategies for multi-instrument IQC.



Inherited metabolic disease (IMD)

This was chaired by Ann Bowron (Newcastle upon Tyne) and hosted by the UK Metabolic Biochemistry Network (MetBioNet).

The first speaker was Nicole Gossan, Metabolic Genetics service lead Clinical Scientist at Manchester Genomic Laboratory Hub. Dr Gossan gave a clear summary of how genetic testing for IMDs is organised in England and how any variants detected are classified.

Heather Church (Willink Biochemical Genetics Unit) covered biomarkers for the lysosomal storage diseases Gaucher, Metachromatic Leukodystrophy and Krabbe. These biomarkers are a useful addition to enzymology for diagnosis (for example to distinguish pseudo-deficiency from true deficiency) and can in some cases also be used to monitor treatments.

The final talk of the session was on sitosterolaemia from Elaine Murphy (Charles Dent Metabolic Unit, London). This is an autosomal recessive condition in which the ABCG5 or ABCG8 transporters are defective causing increased intestinal absorption and reduced biliary excretion of plant sterols (sitosterol, campesterol and stigmasterol). Clinical features in these patients include xanthomas, haemolytic anaemia, joint pains, splenomegaly and early cardiovascular disease. Biochemical diagnosis can be made from the measurement of high plasma plant sterols (available at Newcastle, Sheffield and UCL) and patients show a good response to ezetimibe.

Poster session

The lunchtime poster session was well attended and featured a range of technical and clinical presentations. Rebecca Hopkins (Bristol) presented in the spotlight session on how low cortisol from a hypoglycaemia screen may provide an opportunity to diagnose the peroxisomal disorder X-linked adrenoleukodystrophy. Amy Dunne (Birmingham) presented a case of familial hCG which is rare but important to consider when raised serum hCG is detected without obvious cause.

This was an excellent day which showcased the wide variety of topics and excellent science which fall under the umbrella of laboratory medicine and was a great credit to the organising committee. I am very grateful to the Association for Laboratory Medicine for the provision of a bursary to attend.

POSTERS WITH IMPACT: SHOWCASING INNOVATION AT LABMEDUK25

Every year, the LabMedUK National Meeting puts laboratory innovation centre stage – and nothing captures that more vividly than the poster exhibition. For many junior scientists, writing a poster abstract is their first foray into scientific publishing – an essential stepping stone to authoring short reports or full papers. Thanks to the *Annals of Clinical Biochemistry and Laboratory Medicine,* every accepted abstract is published in a dedicated supplement, providing a citable reference and boosting visibility for the work being done across UK laboratories.

ELIZABETH HALL
Editor of *Annals LabMedUK* Meeting Supplement

Bringing poster research to life

Preparations for the 2025 meeting began in earnest back in February, with an influx of abstract submissions. The Scientific Committee carefully reviewed each one, selecting highlights for the Interactive Clinical Cases, poster prizes, and the prestigious Medal Award.

Once accepted, authors got to work designing posters, preparing presentations, and often, seeking funding to attend the meeting in Manchester. During the event, posters were prominently displayed near the bustling exhibition space. A special attended poster session during lunch breaks gave delegates the chance to meet authors face-to-face, ask questions, and exchange ideas – an essential part of the meeting experience.

Now, many of those posters are proudly displayed back in home laboratories, while digital versions remain available to browse via the LabMedUK website.

A record of progress

This year's supplement features 102 abstracts, compiled into a single document due to be released with the September issue of the *Annals*. The supplement is attached to an editorial from the LabMed president and the director of conferences and events, offering highlights from the meeting and celebrating this year's award winners.

I have edited this supplement since 2013 and it has been one of the great privileges of my role. Each year, I'm struck

by the creativity, clinical insight and practical problem-solving reflected in the submissions – real-world work tackling the day-to-day challenges of modern laboratory medicine.

Of course, none of this would be possible without the behind-the-scenes dedication of Nikki Williams of NAB Services and the LabMed office team, who help steer the entire editorial process to publication.

Looking back: A handy archive

Curious to explore past abstracts? You can find conference supplements from the last nine National Meetings via the *Annals* website – though they're not always easy to track down. See below for a quick-reference guide to help.

As LabMedUK continues to grow, the poster sessions remain a vital part of its identity – shining a light on the ideas and individuals driving laboratory medicine forward. Whether you're a first-time presenter or a seasoned contributor, your work matters – and we're proud to help share it with the world.

Meeting	Issue	Where to find the abstracts
2015	July 2015; 52 (4)	'View additional files' at top of contents page
2016	May 2016; 53 (3)	'View additional files' at top of contents page
2017	May 2017; 54 (3)	'View additional files' at top of contents page
2018	May 2018; 55 (3)	'View additional files' at top of contents page
2019	May 2019; 56 (3)	'View additional files' at top of contents page
2021	March 2022; 59 (2)	'Supplementary material' at bottom of Editorial
2022	March 2023; 60 (2)	Link to 'On-line supplement' within text of Editorial
2023	September 2023; 60 (5)	Link to 'On-line supplement' within text of Editorial
2024	November 2024; 61 (6)	'Supplementary material' at bottom of Editorial

GREEN CHAMPIONS

A SCOPING REVIEW OF ENVIRONMENTAL HARMS IN CLINICAL LABORATORIES

ROB SHORTEN

Consultant clinical scientist, Department of Microbiology, Lancashire Teaching Hospitals NHS Foundation Trust

I started to scroll down my inbox this week and saw that what is now the Green Champions started as a small band of keen LabMed members just over three years ago. The time has flown by since, and we have moved on, including an organisational rebrand and name change to LabMed. Since the publication of the Delivering a Net Zero NHS in late 2020, there has been increased interest in, and progress towards, reducing the environmental harms as a by-product of what we do to care for our patients. With laboratory audit tools, such as the LEAF pilot, and the establishment of the Clinical Labs Sustainability Network of the Centre for Sustainable Healthcare, there seems to be some momentum in awareness and resources to help diagnostic laboratories to do better.

However, there is still much work to do. Many labs are experiencing an extremely busy time. Increased workloads, budget cuts and recruitment freezes mean that additional 'asks' such as sustainability often take a back seat. The Green Champions are frequently contacted by labs who want to do better but don't know where or how to start. You may already be aware that sustainability has been added to all existing domains of NHS England's Pathology Network Maturity Matrix. Whilst these targets are not being scored in this financial year, it is anticipated that these will become mandatory at some stage. Therefore, it is incumbent on us to grasp this challenging problem, as the sooner we start, the better. One tool that should help us to do this is currently being piloted by NHS Pathology. Ashling Coakley-Burns is a chief sustainability officers clinical fellow who is working with NHS Pathology, UKRI and the Peninsula Pathology Network to design an audit dashboard that aims to help pathology labs in a standardised way. You can read about this on pages 42-43 in this edition of *LabMed News*.

While most agree that we need to improve, it is not possible to measure our progress if we don't know the current state. We know that the NHS contributes approximately 5% of the UK's carbon footprint. However,

we have no real idea how much laboratory testing contributes to these emissions. Given that pathology testing is involved in virtually every patient pathway, the scale is likely to be vast. Therefore, we wanted to ascertain a more accurate picture of the environmental impact of diagnostic laboratories.

Fellow Green Champion, Anna Sanders, together with colleagues from Lancashire Teaching Hospitals, the University of Central Lancashire and Martin Farley (UKRI, and the originator of LEAF) worked together to undertake a scoping review on this subject. For those who are not aware, there are various types of systematic review, depending on the research question, and the types of existing published evidence. A scoping review was chosen in this case, as we felt that there was not an enormous amount of published literature, and we wanted to establish a broad overview of the subject area and to establish gaps in knowledge that will inform future research questions. We are delighted that this review is now online in *The Annals of Clinical Biochemistry*.

The team worked together to establish the study protocol, including the fundamental concepts of what 'diagnostic laboratories' and 'environmental harm' may encompass. Once these were established, we began the literature search. This returned 2,217 unique papers that were screened at the title and abstract level, with 322 papers undergoing full text screening for a quantified environmental impact related to laboratory diagnostics. We finally whittled these down to 43 papers to be data-extracted and reviewed.

We found that, whilst the earliest paper was from 1975, the vast majority were published in the last 10 years, with increased activity from 2021. The location of the papers was globally diverse, but the majority were published in developed nations, such as the US, UK and Australia. Furthermore, these studies were largely not inter-connected, i.e. they did not often cite each other, suggesting that this subject area is being researched by various teams in isolation. Most studies were observational in design, with very few describing an intervention to reduce the environmental impact of laboratory testing. Some studies looked at individual tests, such as vitamin D or prostate biopsies, while others focussed more widely on energy use and waste production.

What was clear is that the outcomes described across these studies varied widely, so direct comparison between them was not possible. Additionally, those studies that did undertake life cycle assessment (the method used to calculate a carbon footprint) used different parameters for what was measured, so comparison between these was also not possible.

This scoping review demonstrates an increasing interest and awareness in this important field. However, the heterogeneity of reported measurements and limited interconnectivity of the studies suggest that this is still a developing area. With a lack of consensus in methodologies and outcomes, this baseline analysis of the environmental impact of clinical laboratories seems distant. Future efforts should focus on enhancing the assessment of individual laboratory tests, promoting greater standardisation of methodologies and outcomes, and repeatability to improve the reliability of environmental impact evaluations.

FUTURE PERSPECTIVES

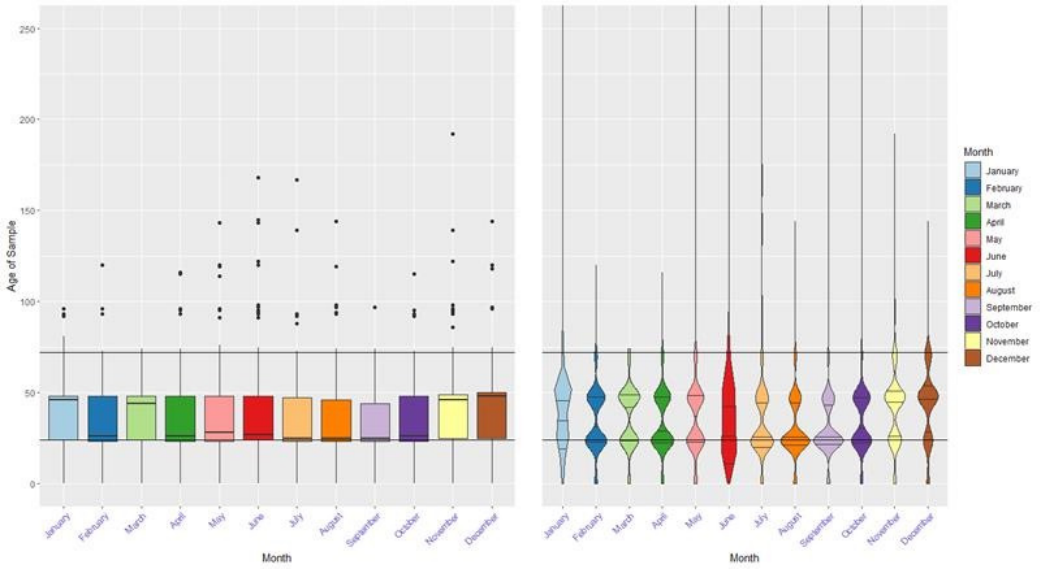
THE JOYS OF DATA VISUALISATION

by

JESSICA JOHNSON

Sheffield Teaching Hospitals NHS Foundation Trust

One of my first Quality Improvement Projects that I did during my ChemPath training was to assess the time it was taking for receipt of samples via the post for the monitoring of bloods for patients on specialist medication on the pulmonary hypertension unit, so that we could make decisions about whether we would be able to add further tests to them, as the clinicians had requested, or if too many of them would be rejected to be worth it. I was able to get the list of samples that we had received over the last year, as well as the age of the sample on receipt. With the help of a lot of handholding on the Biochemistry Trainees discord server, I was introduced to the wonderful world of R and data visualisation. Using a violin chart, I could see how samples were coming to the lab throughout the year, saw the Christmas slow down, and puzzled over the change in June (perhaps a large fluctuation in postal drop offs?). It gave a lot more information than I would just see[7] in a general bar plot, which is the sort of graph I would have constructed in the past. It also led to thoughts about how we rely on the postal service for sample delivery, especially in the winter months when Royal Mail is more overwhelmed. .



The tidyverse package is extremely useful for data manipulation and analysis, and there is a great website with help for learning to use this. It also has a host of different data sets for learning and testing plots, which is especially helpful when trying to ask for help when troubleshooting why it may not have worked as imagined, especially as there is definitely a steep learning curve. For lots of exemplar graphs, the R Graph Gallery is a must.

Another extremely useful adjunct for the tidyverse is gtsummary. This package creates very customisable summary tables of data, as well as doing the aggregate statistics for you which is another way to easily identify trends. This is especially useful for analysing trial data. Surv and Survminer are also very useful in the context of trial data, for looking at differences in survival as well as the creation of Kaplan-Meier curves.

The process of data visualisation can also lead to more thoughts and discoveries. One example of this was when I was asked to look at how vitamin D tests are currently being repeated in order to assess whether we should think about implementing a hard cut off for vitamin D repeat testing. I thought it might be helpful to construct a heatmap looking at how the vitamin D status previously and on repeat correlated. This showed that a large proportion of samples which had previously been deemed to be between 75 and 220 nmol/L (a very generous definition of "sufficient") were being repeated. I then thought it might be useful to see if this differed if the repeats were "early" (using a three-month cut-off) or later to see if there was a temporal component, though the patterns were actually visually similar. I then used a gtsummary table to pick out the top requesting specialties and then looked at how these differed. This showed that Primary Care (the overwhelming requestor of vitamin D samples) were more likely to repeat samples if the previous were severely deficient, though the other specialties (especially A&E!) were more likely to be repeating patients known to already be vitamin D sufficient. We will now hopefully be able to use the data to discuss this with A&E and see if we can decrease their overall testing. Also seen, the bone health unit often uses paper requesting, and so their clinicians may not be set up properly on the lab systems which showed in the data as their specialty not coming up (easily found by looking at a summary table of all the locations where the specialty was unknown). Creating timelines of the most requested patients also gave some interesting insights into how the vitamin D was changing (or not) over time and can allow for a deeper dive into those patients at a later date.

R Markdown is an inbuilt tool for RStudio and a very useful tool to easily transfer the graphs into powerpoint slides, especially helpful when you want to show the same graphs for multiple analytes in a data set. It can also be used to import these graphs and tables into a word or pdf document. It can then be easy to change colour palettes or other formatting depending on the form in which it might be published.

R and RStudio are sadly not supported by IT in all trusts, but if they are, it is definitely worth asking to have them installed on your computer. It does have a learning curve, however the best way to learn is to use it frequently for small projects. There is lots of support available online, and generally those of us who hang out on the discord are happy to help. The creation of multiple charts using different filters for easy visual comparison is an extremely powerful tool for the quick review of data and may often lead to further questions when trying to investigate any differences or unusual findings that may not have been noted previously.

HOW TO FIND AND CHOOSE EVENTS TO GO TO

ALLY MATTHEWS

Senior clinical scientist, Pathology - University Hospitals Birmingham NHS Foundation Trust, Birmingham

Attending conferences and other events can be a very worthwhile way to develop your knowledge, gain new insights and form collaborations. But you may find yourself asking the question – "How do I find and choose events to go to?" – and trust me, you are not alone. Being aware of the opportunities that are available to you can make a big difference, as well as knowing how to select events that are right for you. In this article, I will share some upcoming events that may help you to choose opportunities that align with your interests and goals.

If you are interested in the improvement of the preanalytical phase, then why not consider attending **The European Federation of Clinical Chemistry and Laboratory Medicine (EFLM)** Preanalytical Phase conference? This year it is held in Padova, Italy, between 12 and 13 December. The **Association for Laboratory Medicine (LabMed)** also organise different types of events throughout the year; for example, LabMedUK25, which this year took place in Manchester between 9-11 June. Don't forget also to consider the residential course organised by LabMed, which is aimed at trainee clinical scientists or clinical pathologists looking to expand their knowledge or preparing for FRCPath examinations. Next year, a residential course will be held in Nottingham between 19-21 January. Finally, regional events are also organised by members of LabMed, so please check the 'events calendar' section of the LabMed website to see if there is an event coming soon near you! If you would like to attend a global laboratory medicine conference, then why not look at events organised by **The Association for Diagnostics and Laboratory Medicine (ADLM)** and **The International Federation of Clinical Chemistry and Laboratory Medicine (IFCC).** The ADLM organises a five-day meeting to discuss timely topics in laboratory medicine, and their next conference will be held in California between 26-30 July 2026. IFCC World Lab brings together experts in the field to discuss the changing landscape of laboratory medicine, and next year this event will be held in New Delhi, India,

on 25-29 October 2026. For those of you with a particular interest in point-of-care, then look at Clinical Innovations EXPO, as well as other events on the POCT innovators website.

If you would like to expand your knowledge of endocrinology, as well as stay updated on new developments in this field, then take a look at events organised by the **Society for Endocrinology (SfE)**. They organise an annual conference (BES) in the UK, as well as a three-day clinical update residential. The next clinical update will be November 2025 in Stratford-upon-Avon.
The European Society of Endocrinology (ECE) and **The Endocrine Society** organise annual congresses to share the latest endocrine research and developments. The next ECE congress in Prague is 9-12 May 2026, and ENDO2026 will be held in Chicago between 13-16 June 2026. In addition, **The Royal Society of Medicine** organises one-day events throughout the year that include a focus on diabetes and endocrinology, as well as topics relating to lipids and metabolic medicine.

For those with a specialist interest in toxicology, inborn errors of metabolism and mass spectrometry, the following events may be valuable during your training: **United Kingdom and Ireland Association of Forensic Toxicologists (UKIAFT)** and **The British Inherited Metabolic Diseases Group (BIMDG)** annual symposium, as well as events provided by **The Association for Mass Spectrometry and Advances in Clinical Lab (MSACL).** The latter society provides short courses, workshops, troubleshooting tips and plenaries in their annual conference. This year it is hosted in Montreal, Canada between 21-26 September.

Opportunities to develop your leadership and management skills are available at **The Institute of Biomedical Science (IBMS)** congress. This year the IBMS event is in Birmingham between 22-25 September and includes a Laboratory Medicine Leaders Summit.

Get out there, be curious and connected, and attend events that are right for you. Make the most of chances to broaden your knowledge, whilst also staying ahead of new developments!

*Note, that this article not an exhaustive list of opportunities, but a summary of events selected to represent the different areas of clinical biochemistry.

I REMEMBER WHEN...

1970S LABORATORY INNOVATIONS

by

IAN WATSON

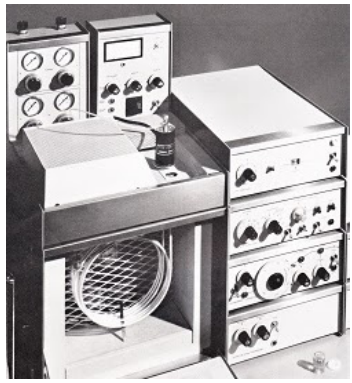
Retired consultant clinical biochemist and clinical toxicologist

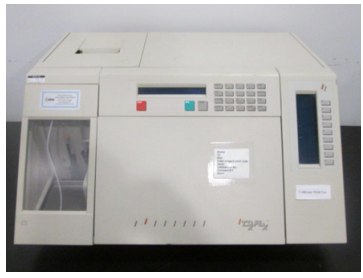
An area that rapidly developed in the 1970s was the measurement of drugs and metabolites in the monitoring of drug therapy (TDM) and in poisoning.

TDM came to the fore with the recognition that patient responses to anticonvulsants, both therapeutic and toxic, were related to the concentration of the drug, this was particularly relevant to phenytoin due to its kinetics. Initially measurements were by laborious extraction/ spectrophotometric assays that were unsuitable for any more than a few samples and were time-consuming; similarly investigation of then common overdoses of barbiturates was equally laborious.

Gas chromatographs were rare in the 1970s, but assays developed on these greatly improved the specificity of measurements, but the assays were still technically challenging and were the preserve of larger specialised laboratories. The explosion in routine drug analysis was the innovation of the EMIT (Enzyme Multiplied Immunoassay Technique) marketed by Syva, that was reliable, precise and rapid, enabling provision of monitoring services to epileptic patients and covering other drugs such as digoxin as well as some misused drugs such as opiates, benzodiazepines etc. This was soon joined by the Abbott system for FPIA (Fluorescence Polarisation ImmunoAssay); testing was now possible in any laboratory! These resulted in wider and better understanding of pharmacokinetics and the individualisation of therapy and the ability to intervene more specifically in poisoning.

These innovations ignited a wider appreciation of the best practice of therapeutic drug monitoring and clinical toxicology that continues to this day.





BEYOND THE TRAINING SCHEMES: BUILDING CAREERS AND SHAPING TOMORROW'S CLINICAL SCIENTISTS

ROB SHORTEN

Consultant clinical scientist, Department of Microbiology, Lancashire Teaching Hospitals NHS Foundation Trust

Healthcare is becoming increasingly complex and specialised. Diagnostics, including the development and deployment of novel tests, have never been more important in managing a growing, ageing and increasingly co-morbid patient population. Clinical scientists are integral to these processes, and the NHS has an absolute need to train scientific staff for service delivery now, and to be the leaders of tomorrow. This never-ending pipeline of training is something to be nurtured and to be proud of. I'm reminded of this by reflecting that many of my peers from the early days of my training in London in the early 2000s are now in senior roles, contributing to complex clinical services and have trained (and continue to train) excellent scientists. These clinical scientists will continue to grow and develop and will ultimately oversee the training of the generations to come.

The nature of clinical scientist training has always been precarious, whether it be the old Grade A training scheme, the Scientist Training Programme, or the keen graduate looking to take every opportunity going to gain the experience to achieve equivalence. When the end of this training process is on the horizon, the inevitable anxiety of "what do I do next" appears. Most funded training posts cover the length of the training and no more. I don't think I'm breaking any professional code of secrecy here by stating that workforce planning for clinical scientists is just as bad as in the rest of the NHS, and the number of training posts offered is seldom linked to service need, but more often reflects the finances available and the number of willing training centres at the time. This inevitably leads to peaks and troughs in the numbers of trainees and newly registered clinical scientists.

We are soon to see a large cohort of microbiology STPs exit training in September. You'd have to have your head buried in the sand to not be aware of the precarious financial state of many NHS trusts. Recruitment freezes, pauses in

capital purchases and even redundancies are occurring. This constrained financial climate is certainly impacting on the number of HCPC-registered clinical scientist posts being advertised. This is certainly causing significant amounts of anxiety within the cohort of microbiology STPs, and I'm hearing similar reports from both immunologists and biochemists. I'm not going to condescend to you all by saying that this is all fine and that everything will be ok. However, there are a few things that I'd like to share that may provide some reassurance.

Firstly, by being accepted onto, and completing, STP you've already beaten the odds. STP is a highly competitive graduate entry training scheme. The most recent data from the National School of Healthcare Science shows that there are 71 applicants for every direct entry microbiology post. Sometimes even highly achieving people experience doubt and imposter syndrome. I often tell trainees to take a moment to reflect on their achievements. You are here on merit, have worked hard over the three years, and have achieved a lot. This broad ranging experience, including an MSc, will make you far more attractive to a future employer than you were at the start of STP. Most microbiology STPs that I speak to want to progress to HSST, then onto consultant roles. This, although a challenging and highly competitive process, is admirable and to be encouraged, especially with current and future consultant vacancies. Some clinical scientists who have progressed directly from STP to HSST have found the leap in workload and complexity challenging. Some involved in the training are advocating for a mandatory gap of at least a year between these training schemes to allow a trainee to gain more experience and to prepare for HSST. Us clinical scientists old enough to remember the Grade A training scheme had a fourth (unfunded) pre-registration year to navigate.

Whilst it is tempting to want to 'get through' the training schemes as quickly as possible, I'm constantly reminded of a few prompts that I share with my trainees and anyone else who stands still long enough to have their ears chewed off by me. Firstly, very few clinical scientists have linear careers. They often bump around a few jobs and labs, picking up a broad range of skills, experience (and a wider network of colleagues) on the way. We are constantly learning, and whilst the next opportunity that presents itself may not be your ideal job, there is still plenty that you can learn from it. Always look for how a role can add to your knowledge, skills and experience. How can this role make you a better clinical scientist and mean that you'll be in an even better position to succeed when the 'dream job' comes up? I call these 'stepping stone' jobs. It may not be perfect, but if you're clear in your planning of what you want to achieve in the long term, you can assess what each of these potential roles might add to your CV. Is it in a reference lab where you'd gain specialist knowledge or a new technique? Is it in an academic setting that might grow your research experience? Is it in industry that allows you to see the other side of the curtain and grants an opportunity to grow some soft skills. If you think that you might grow as an individual in the role, then it is not wasted time. You should grasp the opportunity and suck as much experience from it as possible. Clinical scientists with broad experience are often very well placed to take up more senior roles, including HSST.

We hosted a webinar last year when several clinical scientists in vastly different roles described their career paths. I hope that this will give some reassurance that you don't need to rush through training in a straight line, and that some stepping stone jobs on the way may even open up a whole new direction of travel for your career. As always, keep working hard, take every opportunity offered that you think will add to your CV, and try to enjoy the ride.

CONTAGIOUS ENTHUSIASM AT LABMEDUK25

The Association for Laboratory Medicine rolled into sunny Manchester for the 2025 edition of LabMedUK. As always, the content of the Microbiology training day aimed to cover aspects of infectious disease and microbiology that may be difficult to address adequately as part of structured training programmes. This year, sessions covered topics including radiology and infection, clinical history taking for non-medics, histopathology and infection, interpretation of fungal diagnostics and a fantastic selection of clinical cases encompassing all areas of clinical microbiology.

CALLUM GOOLDEN

Clinical scientist, Virology
UK Health Security Agency;
and Department of Virology
Manchester Medical Microbiology,
Manchester University NHS
Foundation Trust

Radiology and infection

In the first Microbiology specific session, Monika Radike gave a comprehensive overview of how radiological investigations can help decode infection and inform clinical care. The advantages or disadvantages of various imaging modalities were evaluated and the utility of each were described in the context of real clinical cases. It was particularly interesting to hear how specific patterns observed on radiological examination can help guide clinicians towards the most probable diagnosis, for example 'ground glass halo' in invasive aspergillosis and candidiasis. For non-medically trained professionals like myself, these insights that are not necessarily covered in our training are invaluable.

Microbiology trainees engaged with the session *Decoding tissue clues in pathogen identification* presented by David Dorwood

Clinical history taking for clinical scientists

Charlotte Brookfield led a session on history taking for non-medics. The presentation systematically walked through the history taking process, from identification of the presenting complaint (and history via the SOCRATES pneumonic) all the way through to systems review. The session provided an excellent recap of a key skill for all infection specialists but also provided some fantastic new insights. One tip I found particularly useful was the recommendation to check the 'Summary of Product Characteristics' (SPC) of unfamiliar monoclonal antibody treatments to help determine their mode of action and thus which infections they may predispose patients to.

Interpretation of fungal diagnostics

The interpretation of fungal diagnostics is a particularly tricky topic. Riina Richardson presented an excellent talk on the process of assessing the clinical performance of a diagnostic test, with a focus on *Pneumocystis jirovecii* pneumonia (PCP) PCR. Deep respiratory samples e.g. BAL are advised for the detection of PCP, however, these samples are difficult to obtain. The use of throat swabs has been evaluated for this purpose, and Riina expertly illustrated this process, with clear and digestible explanations of key statistical measures such as sensitivity, specificity, likelihood ratios and diagnostic odds ratios. Working as a clinical scientist, a key part of my role is to evaluate and validate new diagnostic assays within my laboratory to improve our ability to accurately diagnose and monitor infection. I see myself referring back to my notes from this presentation for years to come!

LabMedUK25 once again provided a fantastic programme of scientific and clinical content, but also a crucial opportunity to catch up with old friends and maintain, but also further develop professional networks. I hope the Microbiology training day continues to go from strength to strength and I look forward to attending again next year.

Delegates during breakout discussions at the shared Biochemistry and Microbiology session on effective research study design and research ethics

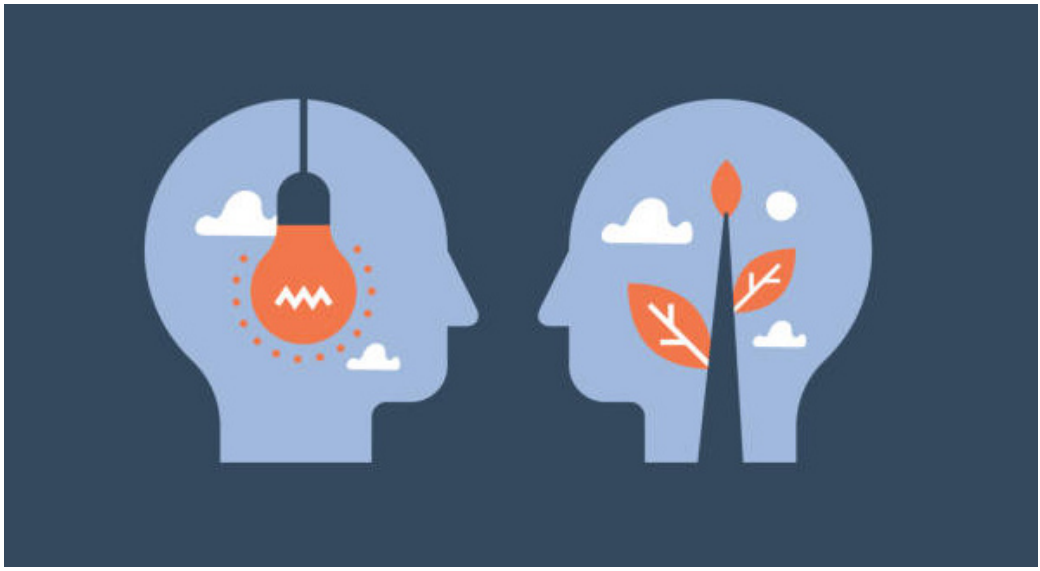
THE ENDURING IMPACT OF THE LABMED MENTORSHIP SCHEME

IJEOMA OKOLIEGBE

Clinical scientist, Department of Infection Prevention and Control Aberdeen Royal Infirmary, Aberdeen

It has now been over two years since I completed my HCPC registration as a clinical scientist. Looking back, the journey from aspiring to be recognised through the equivalence route to becoming a fully registered and practicing professional was both challenging and deeply formative. One of the most pivotal supports during that process was the Mentorship Scheme offered by the Association for Laboratory Medicine (LabMed). As I reflect on the lasting value of that experience, I recognise how profoundly it has shaped not only my equivalence journey but also the direction of my ongoing development, identity and contribution to the profession.

When I first applied to the LabMed Mentorship Scheme, I was at a professional crossroads as I had reached a point where I needed to critically evaluate my career satisfaction and progression. The application process of the scheme required me to define goals and expectations. This compelled me to carry out a structured self-assessment that would ultimately form the foundation for intentional growth. That early clarity remains significant even now. It made me a more engaged and proactive professional, and crucially,



it helped me identify a mentor whose skills and experiences aligned with my ambitions. The practice of reflecting on my goals, gaps, and potential did not end with the scheme; two years on, it continues to inform how I plan my CPD, engage with new opportunities, and appraise my own progress. The mentorship scheme taught me how to think about my career with strategy and self-awareness.

One of the most memorable aspects of the mentorship was how our first meeting laid out a structure for the relationship. My mentor Rob Shorten proposed what he called "ground rules" – clear, mutual expectations that gave shape and discipline to our meetings. At the time, I appreciated the clarity. With the benefit of hindsight, I now see this as a good example of an effective model of structured professional collaboration – something that I have since adopted in my own working relationships and leadership roles. Whether managing projects, mentoring others or participating in multidisciplinary teams, I find myself leaning on the communication and boundary-setting practices I experienced through the scheme. The value of consistent, purposeful engagement cannot be overstated, particularly in the often time-pressured and reactive environment of healthcare science. What began as structure for a mentoring relationship has become a principle I now apply across multiple domains of my work.

During the early stages of the mentorship, my mentor and I agreed on three **S**pecific, **M**easurable, **A**chievable, **R**elevant and **T**ime-bound (SMART) goals: to secure HCPC registration via the equivalence route, to establish a professional research network in Infection Prevention and Control (IPC), and to invest in personal development areas that would strengthen my clinical identity. These were well-defined, measurable objectives that gave our sessions purpose and enabled us to track my development in real time. Two years on, I am struck by how those goals continue to shape my trajectory. Having achieved registration, I now mentor other scientists navigating the equivalence route. The IPC network I began to build during that time

has evolved into active collaborations, conference participation, and committee opportunities. And the personal development I prioritised then – particularly around confidence, presentation skills and strategic thinking – has underpinned my transition into more senior roles.

More than a tool for progress during the mentorship, SMART goal-setting has become a professional habit. I now approach appraisals, CPD planning and even service improvement initiatives through the lens of clearly defined objectives. The structured thinking cultivated during the scheme remains one of its most practical legacies. Reflecting on the mentoring relationship itself, I remain incredibly grateful for the generosity, insight and empathy my mentor Dr Shorten brought to the process. I was navigating the uncertainty of a non-traditional registration route, often feeling the weight of imposter syndrome and professional invisibility. My mentor not only provided technical guidance, particularly around portfolio development and interview/viva preparation, but also offered something even more valuable: belief. Being supported by someone who understood the journey, respected its validity, and had no hesitation in affirming my potential was transformative. It gave me confidence at a time when I needed it most.

As I now support others in their careers, I realise just how significant that confidence-building was. Although technical support can be found in many places; authentic encouragement from someone who understands your path is much rarer and far more powerful. That mentorship helped me see my experience not as a deviation from the norm, but as a legitimate pathway that enriched the profession's diversity. It shifted my internal narrative from "am I good enough?" to "how can I contribute?". This question still motivates me today in my daily practice.

Another enduring benefit of the mentorship scheme has been the professional networks it opened up. Through my mentor, I was introduced to IPC networks/mentors and professional groups that I continue to engage with actively. These connections have led to collaborations, speaking invitations, and most importantly, a sense of professional belonging. For many clinical scientists, especially those working in specialist for example environmental IPC or geographically isolated settings, building a meaningful network can be challenging. The LabMed mentorship acted as a catalyst, linking me to a wider community of professionals and reminding me that career progression is not only about skills and credentials, but about relationships. Even now, I regularly attend meetings, contribute to working groups and maintain contact with professionals I first met during the mentorship period. These relationships offer ongoing opportunities for mutual learning and support and they also challenge me to remain curious and outward-looking in my practice.

Two years on, I also find myself reflecting on how the experience of being mentored has influenced my own approach to leadership. As I have progressed into more autonomous roles, I've become increasingly aware of the importance of creating environments where others can grow; just as my mentor did for me. I have now supported several colleagues and trainees through informal mentoring relationships as the LabMed Equivalence representative for the Microbiology Professional committee, and each time, I have returned to the lessons learned during the LabMed scheme: the importance of listening more than talking, the power of structured goal-setting, and the need to adapt to the mentee's pace and priorities. In this way, the scheme didn't just help me develop, it showed me how to help others develop. It was a masterclass in compassionate,

practical leadership and one that has subtly but fundamentally shaped how I see my role within the healthcare science community.

Perhaps the most significant long-term impact of the LabMed mentorship scheme is that it helped consolidate my identity as a clinical scientist. At the time, I was building towards formal recognition through registration. But now, I see how the process of engaging in mentoring, being seen, supported and challenged. It allowed me to internalise that identity far beyond the formal credential. The scheme provided a mirror, reflecting back to me a version of myself that was competent, ambitious and capable of meaningful contribution. That identity has since been tested and affirmed through new roles, challenges and achievements. But it was during the mentorship that it first began to crystallise. I emerged from the scheme not just as someone who had "completed" a process, but as someone who had been shaped by it.

In summary, I can say with confidence that completing the mentorship scheme has had a profound and enduring impact in my career as well as a person. It helped me define my goals, built my confidence, established networks that have proved to be my unofficial "phone-a-friend" and I completed a professional registration. More than that, it modelled a form of mentorship and leadership that continues to influence how I work, support others and contribute to the profession.

For me, the scheme was not just a stepping stone, it was a foundation. It taught me how to think critically about my development, how to engage meaningfully with colleagues and how to give back.

It connected me to a wider community of practice and reminded me that no journey in healthcare science is ever truly walked alone. As I look ahead to the next phases of my career, I do so with gratitude for the LabMed mentorship scheme, not only for where it took me, but for how it equipped me to go further still.

A SUSTAINABILITY CLINICAL FELLOW'S JOURNEY INTO THE WORLD OF LABORATORY MEDICINE

ASHLING COAKLEY-BURNS

Clinical fellow, Peninsula Pathology Network

What is the CSO Clinical Fellowship Scheme?

The Chief Sustainability Officers (CSO) Clinical Fellowship is a twelve-month programme designed to identify and support clinicians who want to develop as clinical leaders and as sustainability champions of the future. Clinical fellows lead on key projects to help embed net zero carbon principles across the healthcare system and take part in a comprehensive educational programme. The scheme is multi-professional. With reference to laboratory medicine, it welcomes applications from doctors in training and healthcare scientists. You can register your interest for the 2026/27 scheme on the FMLM website.[1]

What have I been doing on the Fellowship?

When I started the CSO clinical fellowship, I had completed two thirds of General Practice training. I was offered a post funded by UK Research and Innovation (UKRI), with the aim of driving decarbonisation of NHS diagnostic laboratories. Whilst I was passionate about environmental sustainability, I had not yet undertaken any formal training in sustainable healthcare. Moreover, I had never worked in a laboratory. As you can imagine, it was a very steep learning curve. Luckily, I received enthusiastic support from a variety of expert teams, including Greener NHS, NHSE Pathology Transformation, my host organisation Peninsula Pathology Network and professional body sustainability champions.

We named the project 'Greener Clinical Labs'. Our overarching aim was to develop a resource that specifically supports clinical labs that provide NHS services to improve their environmental sustainability. We also wanted to publicly recognise the progress that labs make through offering certification.

Phase one – the recommendations

The first phase of the project involved developing recommended actions that laboratories could take to improve their environmental sustainability. We felt it was important for these actions to align as closely as possible with existing best practice guidance and accreditation requirements for clinical labs. We also worked to align them with sustainable

healthcare guidance issued by NHSE. We created actions that we thought were likely to achieve co-benefits for labs, such as financial savings, improved quality of patient care and/or experience, plus staff satisfaction.

We did not want recommended actions to be too prescriptive, so that labs have the autonomy to undertake them in a way that is adapted to their local circumstances and fits with their organisation's wider priorities. Labs should have the space to be innovative and creative in their solutions. We also felt the resource needed to support the integration of environmental sustainability into business as usual, rather than it being a separate and additional thing to do. We wanted the resource to encourage lab staff to reach out and collaborate with other parts of the healthcare system and to feel empowered to influence others, even when an outcome is outside of their direct control.

The recommended actions were informed by a review of academic evidence, policy and guidance documents, case studies and by interviews we conducted with Pathology Network sustainability groups. It became apparent that we currently lack literature that thoroughly describes the environmental impact of clinical laboratories. This makes it difficult for us to advise which actions labs should prioritise in order to have the greatest impact. There is also a lack of literature investigating the effectiveness of different actions to improve the environmental sustainability of clinical labs. When designing the resource, we therefore had to apply sustainability principles from other healthcare and science settings to clinical labs. For this reason, we felt it was particularly essential to test our recommendations with the pathology community. We also wanted the resource to be a mechanism for sharing actions already taken by clinical labs in the UK, to minimise duplication of effort. We achieved this by referencing relevant case studies within the resource.

Phase two – The pilot

The second phase of the project involved running a pilot of the recommended actions with clinical labs. Twenty-five labs signed up to participate: they agreed to work on as many of the actions as possible in the short six-week pilot and to provide feedback on their experience. They represented a broad range of disciplines and geographies across England and Wales. During the pilot we ran group meetings for pilot leads to share successes and challenges, which participants reported they found motivating.

We are now analysing the feedback from the pilot and will use this to improve the Greener Clinical Labs resource. The content will then be published on a UKRI online platform called Spark Hub. We want the resource to remain open access, so we will design the certification process and the mechanism for updating the resource to be robust, but lean.

Hopes for the future

We hope that the Greener Clinical Labs resource will help to organise and co-ordinate efforts by clinical labs across the UK to decarbonise and unlock the associated benefits beyond just environmental sustainability. We also hope that it will support the emergence of an evidence base that is specific to sustainability in clinical laboratories.

Laboratory Medicine, as a community, has shown such interest and enthusiasm towards this project, as exemplified by the number of labs willing to take part in the pilot. Considering tests are involved in nearly every clinical pathway in the NHS, you have the power to influence the wider system, which is really exciting for the future of sustainable healthcare in the UK. I am extremely grateful to those who have supported this project; their generosity with their time is all more remarkable given the pressures that services are under.

Reference

1 https://www.fmlm.ac.uk/services-programmes/clinical-fellow-schemes/current-schemes/chief-sustainability-officers-clinical#:~:text=Sponsored%20by%20NHS%20England%27s%20Chief,sustainability%20champions%20of%20the%20future

REFLECTION ON ATTENDING THE CLINICAL IMMUNOLOGY – STP NETWORKING DAY

ARNOLD K. AWUAH
STP trainee, Immunology, Great Ormond Street Hospital

On 11 June 2025, I attended the Clinical Immunology STP Networking Day at the University of Manchester. The event brought together Immunology STP trainees, senior healthcare scientists and national speakers to share research, case studies and professional insights. The day consisted of oral presentations from Year 2 and Year 3 trainees, poster sessions, a guest speaker from the National School of Healthcare Science and one-to-one mentoring opportunities. The event significantly contributed to my professional development by expanding my clinical knowledge, reinforcing the importance of research in diagnostics, and inspiring me to engage more confidently in open academic discussion. I was privileged to be the only first year clinical immunology STP trainee to showcase a poster at this event on the work I carried out looking at T cell responses to SARS-CoV-2 in healthy controls and primary immunodeficiency patients.

The day kick started after Dan Payne, the workforce and education lead for the Immunology Professional Committee (IPC), gave a warm welcome talk. The talks were grouped based on the year of training, the third years first followed by the second years. This was a valuable opportunity for me as a first-year trainee, giving me ideas on how to prepare and present cases during my training.

The third-year trainees shared complex clinical case studies including atypical immune dysregulation and autoimmune liver disease pathways. These talks helped me to better appreciate the variability and overlapping presentations of immune conditions in real-world settings.

The first presentation by Helen James from University Hospitals Sussex, titled ‘Double vision and a double diagnosis’, discussed a 30-year-old woman presenting with multiple vague but concerning symptoms during pregnancy, including vertical diplopia, fatigue and joint pain. Initial blood work was relatively unremarkable,

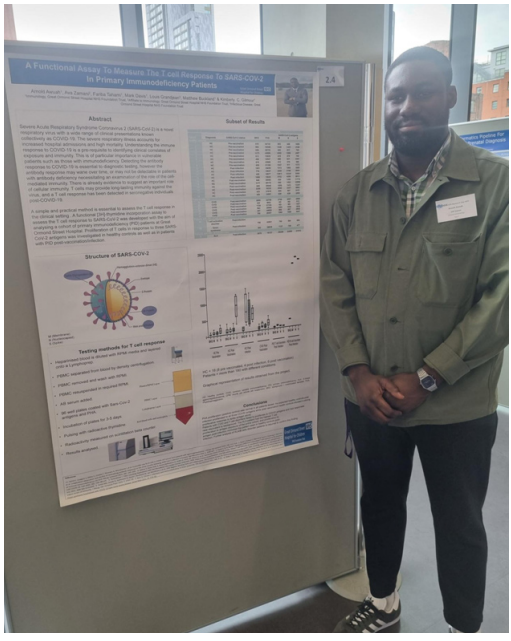
but further endocrine testing revealed hypothyroidism, likely due to Hashimoto's thyroiditis. After multidisciplinary investigation, the patient was also diagnosed with Myasthenia Gravis. This dual diagnosis emphasised the need for thorough clinical history, comprehensive lab analysis and multidisciplinary teamwork, principles that are foundational to clinical immunology. The patient was managed with the T4 replacement Levothyroxine for hypothyroidism and immunosuppressants for her Myasthenia Gravis.

The second talk was delivered by Deepthy Ebenezer from Ashford and St Peter's Hospital who presented a clinical case involving unusual features of immune dysregulation. The case highlighted how patients with immune disorders can present with symptoms that mimic other conditions, making diagnosis particularly challenging. She emphasised the importance of maintaining a broad differential diagnosis and using a combination of laboratory results, clinical history and genetic data to reach a conclusion. Her talk reinforced the need for collaboration between clinicians and laboratory scientists to interpret atypical immunological results effectively.

The third talk was delivered by James Marston who discussed a detailed case involving widespread lymphadenopathy, initially raising concerns for malignancy. However, further investigations revealed underlying autoimmune pathology. His talk walked through the diagnostic journey, including imaging, serology and biopsy and emphasised how autoimmune disorders can present with systemic features often mistaken for other conditions. James highlighted the importance of immuno-phenotyping and the multidisciplinary approach in reaching an accurate diagnosis and guiding treatment.

Lastly, Vania's talk focused on improving efficiency and accuracy in laboratory testing for autoimmune liver diseases (AILDs), such as autoimmune hepatitis and primary biliary cholangitis. She reviewed current diagnostic markers (e.g. anti-nuclear (ANA), anti-mitochondrial and anti-smooth muscle autoantibodies) and discussed how streamlined workflows and clearer interpretive comments can aid clinicians in early and accurate diagnosis. Her work also explored integrating reflex testing algorithms and reducing unnecessary test duplication. The talk underscored how lab-led improvements can directly enhance patient care.

The Year 2 presentations provided me with reassurance and encouragement, as the presenters were at a similar training stage. Talks from Amy Board from Nottingham University Hospitals, on a paediatric patient with abnormal TRECs (T-cell receptor excision circles), the intriguingly titled 'Journey of a plasma cell puzzle' by Marie Calligaris from University Hospital Sussex, and a talk on Immune Dysregulation by Alice Ogden from North Bristol all showcased the thought process and investigation pathways that are both academically rigorous and clinically relevant. Seeing how my peers were already contributing to patient care and research



Arnold with his poster

gave me greater confidence in my current capabilities and future potential.

The afternoon poster session was equally engaging. I was particularly drawn to Joshua Kenney's poster on a novel flow cytometry method for measurable residual disease in myeloma. It demonstrated a clever use of advanced technology to address clinical need, something I am keen to explore in my own work. Another highlight was Lewis Wickham's investigation of CSF kappa/lambda ratios in multiple sclerosis, which has direct diagnostic relevance. These posters inspired me to consider similar research topics utilising flow techniques within my own department that could be shared in similar forums.

Lisa Ayers from the National School of Healthcare Science provided valuable guidance on career progression and the importance of proactive engagement in the healthcare science community. Her insights into leadership within healthcare science and the evolving role of clinical scientists were motivating, especially as I begin thinking about my post-STP career trajectory.

I also appreciated the mentoring session, where I was able to receive tailored feedback about training progression and how to make the most of elective rotations and specialist modules.

Overall, the event enhanced my appreciation of the link between clinical immunology research and patient care, and it encouraged me to become more involved in academic and professional communities. I left feeling both informed and inspired, with concrete goals to pursue, such as presenting a poster in the next academic year and proposing a small quality improvement project related to autoimmune diagnostics. Attending this event aligned well with the STP values of scientific excellence, patient-focused care and collaborative learning. I look forward to attending and presenting in the next year's Clinical Immunology STP Networking Day.

OBITUARY

DR BERNARD F ROCKS

1946-2025

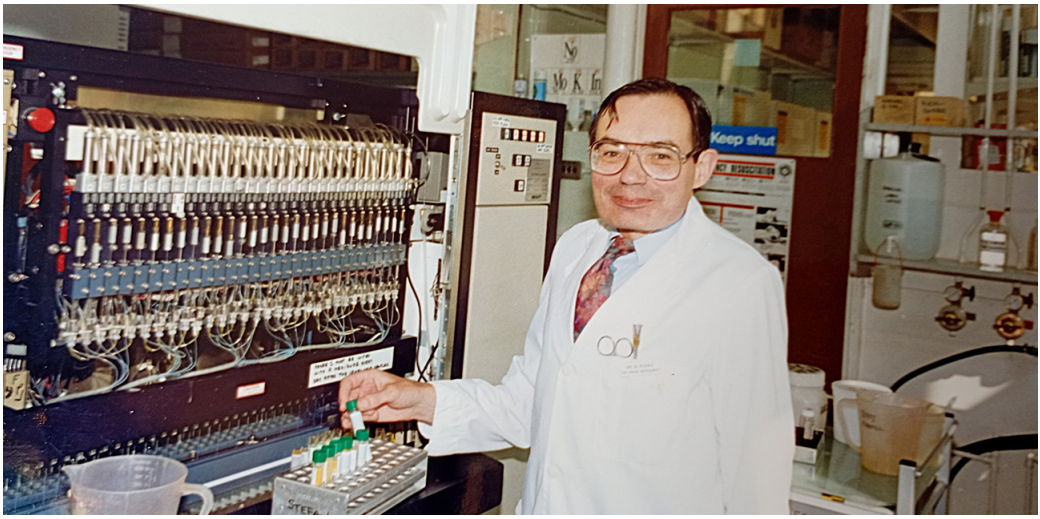
Dr Bernard Rocks, Bernie to all who had the privilege of working with him, was born in Belfast. A childhood accident left him paralysed and in hospital for seven years. By sheer determination he defied the doctors and taught himself to walk again. He then set about catching up with his missed school years. His parents struggled financially but helped him go back to school to get some qualifications, with Bernie working at his uncle's pub at nights and weekends to help with the fees. His PhD from Loughborough University focused on immobilised enzymes (in the 1970s enzymes were too expensive to discard in analyser waste). He was recruited by Clifford Riley at the Royal Sussex County Hospital, Brighton, as a clinical biochemist, working on automated analytical systems. As a Fellow of the Royal Society of Chemistry Bernie was always interested in automation and continued to research into flow injection analysis, novel immunoassays and miniaturisation, publishing more than a hundred scientific papers and holding several patents.

Reflecting his early struggles in education Bernie believed in developing people to their full potential and in giving people second chances. He also believed that the profession is enhanced by people with a variety of different experiences and backgrounds. He was committed to supporting Clinical Biochemistry education. He taught on the Surrey University MSc and at the Brighton and Sussex Medical School. During the thirty-six years that Bernie worked at the Royal Sussex County Hospital he supervised many BSc and MSc projects and several PhDs. He also served as ACB Regional Tutor and Regional Workforce Advisor.

Outside work Bernie enjoyed being with his children and grandchildren. He had a passion for making and fixing things, especially his MG B and hi-fi, and held a light aircraft pilot's licence. He was a kind, gentle person, with a generous nature and spirit who enriched the lives of all who knew him.

Our condolences go to all the family.

E.H.



THE DIGGLE MICROBIOLOGY CHALLENGE

These questions, set by Mathew Diggle, are designed with trainees in mind and will help with preparation for the microbiology part 1 FRCPath exam.

Question 48 from the June issue

A seven-year-old child presents with acute respiratory distress and limb weakness during a suspected summer outbreak. Considering Enterovirus D68 (EV-D68), which laboratory investigation is most appropriate for rapid confirmation?

Options:

1) Viral culture on rhabdomyosarcoma cells incubated at 33°C.
2) Serology for EV-D68-specific IgM antibodies.
3) Broad-range enterovirus/rhinovirus RT-PCR on nasopharyngeal swab.
4) EV-D68-specific RT-PCR targeting VP1 or VP4-2 regions.

Answers

1) EV-D68 grows optimally at 33°C but culture is slow (3-7 days), making it unsuitable for rapid diagnosis.
2) Seroconversion occurs late (weeks post-infection) and is not useful for acute diagnosis.
3) May cross-react with rhinoviruses or miss EV-D68-specific strains without targeted primers.
4) Correct answer: Provides rapid (hours) and specific detection during outbreaks, critical for clinical and public health responses.

Rationale:
EV-D68 requires specific RT-PCR due to genetic variability and overlap with rhinovirus detection in multiplex panels. Culture and serology lack timely utility, while non-specific PCR risks false negatives/positives. This aligns with pathogen-specific diagnostics in outbreak settings.

Question 49

A two-year-old child presents with a barking cough, inspiratory stridor and low-grade fever. Chest X-ray shows subglottic narrowing. Which of the following statements about human parainfluenza viruses (HPIVs) is correct?

A) HPIVs are double-stranded DNA viruses in the Herpesviridae family.
B) HPIV-1 and HPIV-2 are major causes of croup in young children.
C) The mainstay of treatment for HPIV infection is antibiotics.
D) Infection with HPIV provides lifelong immunity against reinfection.

The answer to this question will appear in the next issue of LabMed News.

DEACON'S CHALLENGE REVISITED

NO 38. ANSWER

A 45-year old man is brought to Accident and Emergency following a seizure. He had been working alone late in a garage when a security guard found him and called an ambulance. On admission, he has a large bruise on the left temple, is semi-comatose and smells of alcohol. The admitting team request urea and electrolytes, glucose and an alcohol and blood gas estimation and arrange an urgent CT scan. The results are as follows:

Sodium	**141 mmol/L**	**Potassium**	**4.5 mmol/L**
Urea	**3.5 mmol/l**	**Creatinine**	**105 µmol/L**
Ethanol	**2,700 mg/L**	**Glucose**	**3.2 mmol/L**
Hydrogen ion	**39 nmol/L**	**pO_2**	**11.6 kPa**
pCO_2	**3.8 kPa**		

The CT scan does not show any bony injury or evidence of intracranial bleed.
The neurological registrar is called and asks for an osmolal gap to help provide a quick estimation of whether there is a possibility that other toxic substances present in the garage, such as antifreeze, have been taken in any quantity.

The measured osmolality is 330 mOsm/kg.

As duty biochemist, you are asked to:

a) **Calculate the osmolal gap.**

b) **Show whether the alcohol concentration explains the observed osmolal gap, explaining any assumptions you make in the process.**

.....

a) Numerous equations have been proposed for the calculation of plasma osmolality from the molar concentrations of the principal osmotically active species normally present in plasma – principally sodium and potassium (and their associated anions), glucose and urea. One such equation is:

$$Osmolality_{Calculated}\ (mOsm/kg) = 2\,[Na^+] + [urea] + [glucose] \quad \text{.....(i)}$$

The concentration of sodium is multiplied by 2 to allow for the associated anions (mainly chloride and bicarbonate). Using this equation gives the following result:

$$Osmolality_{Calculated} = (2 \times 141) + 3.5 + 3.2 = \mathbf{289}\ mOsm/kg\ (3\ sig\ figs)$$

Alternative equations have been used which have been claimed to have superior accuracy. These include the following:

$$Osmolality_{Calculated}\ (mOsm/kg) = 1.86\,[Na+] + [urea] + [glucose] + 9 \quad \text{.....(ii)}$$

which gives: $(1.86 \times 141) + 3.5 + 3.2 + 9 = \mathbf{278}\ mOsm/kg\ (3\ sig\ figs)$

$Osmolality_{Calculated}$ (mOsm/kg) = 1.86 [Na^+ + K^+] + [urea] + [glucose] = 10 … (iii)

which gives: 1.86 (141 + 4.5) + 3.5 + 3.2 + 10 = **287** mOsm/kg (3 sig figs)

The osmolal gap is the difference between the measured and calculated osmolality:

Osmolal gap (mOsm/kg) = $Osmolality_{Measured}$ - $Osmolality_{Calculated}$

Using the above three calculated osmolalities the corresponding osmolal gaps can be calculated:

Equation (i): Osmolal gap = 330 - 289 = **41** mOsm/kg

Equation (ii): Osmolal gap = 330 - 278 = **52** mOsm/kg

Equation (iii): Osmolal gap = 330 - 287 = **43** mOsm/kg

b) Calculate the expected contribution of ethanol to the measured osmolality (i.e. the expected osmolal gap) by converting its concentration from mg/dL to mmol/L:

$$\text{Ethanol (mmol/L)} = \frac{\text{Ethanol (mg/L)}}{\text{MW}}$$

MW ethanol (C_2H_5OH) = (2 x 12) + (6 x 1) + 16 = 46

$$\text{Ethanol (mmol/L)} = \frac{2700}{46} = 59 \text{ mmol/L (2 sig figs)}$$

In every instance the calculated osmolal gap is less (not more) than the ethanol concentration which indicates that there is *no significant amount* of any other osmotically active species present.

Assumptions made in calculating osmolality include:

- That all the important osmotically active species are accounted for.
- That all ionic species are completely dissociated.
- That the anions associated with Na^+ and K^+ are free to contribute to osmolality and are not part of a macromolecule (e.g. protein).
- That the activity of each species is the same as concentration i.e. the ions exhibit ideal behaviour.
- That the molal concentration of each ion (mol/kg *water*) is the same as molar concentration (mol/L *plasma*). This is not true since plasma is about 95% water.

It is not surprising that a range of formulae have been proposed and that they all give differing results. It is important to remember that an osmolal gap is calculated from four (or five) individual measurements each with its own inherent imprecision so that the combined imprecision of the final result may be considerable. The reference range using equation (i) has been quoted as -10 to +10 mOsm/kg. Furthermore, volatile solvents such as ethanol do not behave entirely as expected with some osmometers.

Question 39

Two pure solutions of the same substance gave transmissions of 25.1% and 63.1% in the same spectrophotometer under identical conditions.

What is the ratio of their absorbances?

SUSSEX CHALLENGES

Introduction

We, that's Gary (now retired) and Kade, clinical scientists from Brighton, Kate a chemical pathologist from Chichester and Gifford, a retired chemical pathologist, developed an interest in how the linkage of clinical information, theoretical knowledge and practical laboratory practice could be brought together to enhance professional development and judgement in the interpretation of laboratory data. These Sussex Challenges will comprise a clinical strap line (similar to the information we hope may be given on a request form), a set of data and some questions related to that data. On the next page of this issue, we will provide a commentary on those questions (not as answers but as thoughts to further enquiry). You may find that discussing these Challenges as a group activity is beneficial in exploring possibilities.

Challenge 1

A female aged 18 years complains of increasing lethargy, shortness of breath on exercise, night sweats and chronic cough. A chest X-Ray shows an accumulation of pleural fluid which is drained for analysis and symptom relief.

Analyte	Result	Units	Ref Interval
Serum C-reactive protein	107	mg/L	<5
Serum total protein	73	g/L	66-87
Serum albumin	36	g/L	35-52
Serum LDH	348	U/L	125-220
Pleural fluid appearance	Pale yellow		
Pleural fluid glucose	5.3	mmol/L	
Pleural fluid LDH	249	U/L	
Pleural fluid total protein	46	g/L	
Pleural fluid albumin	28	g/L	
Pleural fluid triglyceride	0.9	mmol/L	
Pleural fluid pH	7.33		
Pleural fluid ADA*	49	U/L	0-35
Hb	130	g/L	135-180
WBC	7.9	10*9/L	4.0-10.0
Pleural fluid culture	Negative		

*ADA = adenine deaminase activity

1. **What do you think are the key findings?**
2. **What do you think is the difference between a transudate and an exudate in pleural fluid and how would you differentiate them?**
3. **Do you think this person's pleural fluid is an exudate or transudate?**
4. **What do you think is the significance of the pleural fluid ADA activity?**

Commentary

1. **What do you think are the key findings?**
   - The serum CRP concentration is elevated but WBC within its reference interval.
   - Mild anaemia.
   - The pleural fluid total protein concentration is elevated
   - The pleural fluid glucose concentration is not low.
   - The pleural fluid triglyceride concentration is not elevated.
   - The pleural fluid adenine deaminase activity is elevated.
2. **What do you think is the difference between a transudate and an exudate in pleural fluid and how would you differentiate them?**

The two main types of pleural fluid are transudates and exudates. Transudates are created by an increased gap between hydrostatic and osmotic pressure as found in cardiac failure or cirrhosis, whereas exudates are due to increased capillary permeability due to inflammation, infection or malignancy.

The traditional criteria for differentiation are based on Light's criteria that have been modified over time. The current recommendations are an exudate is indicated if one or more of the following criteria apply:

- Pleural fluid total protein to serum total protein ratio >0.5
- Pleural fluid LDH to serum LDH ratio >0.6
- Pleural fluid LDH is >2/3 the upper limit of the serum LDH reference range.

These criteria are mainly recommended only if the pleural fluid albumin is between 25-35 g/L as if >35 g/L the effusion is an exudate and if <25 g/L it is a transudate. Caution may be required if serum proteins are very abnormal e.g. in nephrotic syndrome. The ratios are affected by method variability, particularly in LDH, therefore the whole clinical picture must be taken into account.

In people with a possible effusion due to cardiac failure, the serum to effusion albumin gradient of >12 g/L may be added to differentiate a transudate from an exudate (>12 g/L = transudate).

See: Cornes M P *et al*. The impact of between analytical platform variability on the classification of pleural effusions into exudate or transudate using Light's criteria. *J Clin Pathol.* 2017: 70(7): 607-609.

3. **Do you think this person's pleural fluid is an exudate or transudate?**
   - The pleural fluid glucose concentration and pH give no indication of infection in the pleural fluid.
   - The ratio of pleural fluid:serum total protein is elevated 0.63 (>0.5).
   - The ratio of pleural fluid:serum LDH ratio is elevated at 0.72 (>0.6)
   - The pleural fluid LDH:serum upper limit LDH is elevated at 1.1 [249/220] (>2/3)
   - These results indicate her pleural fluid is an exudate.
4. **What do you think is the significance of the pleural fluid ADA activity?**

Although pleural fluid ADA activity has a sensitivity and specificity for TB of 91% and 88% respectively and assay of pleural fluid for gamma-interferon of 95% and 96%, their use in the diagnosis of tuberculosis has largely been supplanted by sputum nucleic acid amplification assays (85% and 97%) and blood interferon gamma release assays from T cells following stimulation by exogenous mycobacterium tuberculosis antigens not found in BCG.

Arrigo C *et al.* The laboratory investigation of pleural fluids: An update based on the available evidence. *Annals of Clinical Biochemistry* 2023, Vol. 60(4) 228-235.

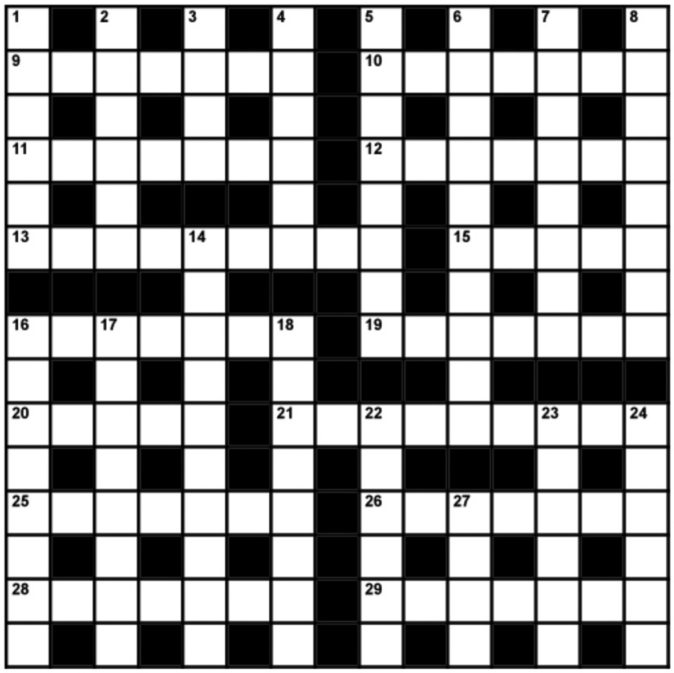
THE CROSSWORD BY RUGOSA

Across

9 Poorly oriental lacking a vitamin (7)
10 Solvent expert with attitude (7)
11 Non-stop catastrophe involved tube structure (7)
12 Attires dishevelled entertainer (7)
13 Providing interpretation (9)
15 Asian tune about Chinese life force (5)
16 Copper dealt with claim for metal (7)
19 Squares with parallels (7)
20 Humour of beautiful young woman changing name for money (5)
21 Still part of crazy number censored (9)
25 Academic, no genius, unhappily soul-searching (7)
26 Odd unreal elm pica syndrome (7)
28 University mentor uncertain how to get on again (7)
29 Passage from former treatise (7)

Down

1 Signed out unregistered tube (6)
2 Stress melody (6)
3 Measure content of high density lipoprotein cholesterol (4)
4 Walk a line enclosing base (6)
5 Forceful speech about hunger and amino acid intake (8)
6 Not into used counterfeiting apparatus (10)
7 Dependable firm (8)
8 Cites informal information about the study of traits (8)
14 Skin, for example, misrepresented euphemistically – not scaly (10)
16 Viral infection follows settling old score (4,4)
17 A doctor deferred paying my cash, backed tumour diagnosis (8)
18 Soften by soaking ingredients from graduate caterer, no raw beginner (8)
22 Log not entered when analogues dispensed for GI symptom (6)
23 A doctor in a British Army regiment dances (6)
24 Responds to fat-free artefacts (6)
27 Primary autoimmune condition that harms a hormone (4)



SOLUTION FOR JUNE'S CROSSWORD

SUDOKU ... THIS MONTH'S PUZZLE

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SOLUTION FOR JUNE

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I	T	M	H	R	E	Y	C	S
H	I	E	R	Y	C	M	S	T
M	Y	C	I	T	S	E	H	R
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