LabMedNews

Association for Laboratory Medicine

AUGUST 2024

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>
> – Lynne Taylor, Ninewells Hospital, Tayside

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AUGUST 2024

Association for Laboratory Medicine

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MESSAGE FROM THE PRESIDENT

KATH HAYDEN

President

Welcome to the August edition of *LabMed News*! It was a pleasure to open LabMedUK24 in June and welcome everyone to Brighton for our annual scientific conference. It was brilliant to see so many members and delegates there, taking the opportunity to make new contacts and catch up with old friends and colleagues. Highlights of the fantastic scientific programme can be found later in this edition. Our thanks go to all of our corporate sponsors who supported the meeting.

In this edition you will also find my report of the award of the President's Shield on 2 July, awarded, posthumously, to Emma Lewis for her outstanding contribution to FCS and the association. Emma's husband, Mike Davies, received the President's Shield on Emma's behalf surrounded by her colleagues at the Countess of Chester Hospital.

Getting involved in LabMed activities is a great way to develop wider skills and expand your network. We are recruiting to some really interesting roles at the moment including a chair for our new Biochemistry Education Group who will also act as deputy director for education, training and workforce.

We have recently started work on our next five-year strategy for LabMed for 2025-30, kicking this off with a strategy day at Tooley Street in July, bringing together subject matter experts, directors of the association and the staff team. We will be able to share more as this develops and welcome any feedback from members on our future direction.

We are delighted to announce the launch of the 'renal resources' page on our website, created by Anna Barton, principal biochemist and LabMed's representative to the UK Kidney Association (UKKA). This will provide easy access for members to the latest guidance on AKI, CKD and KFRE.

We have opened bookings for our next National Audit Day, which promises to be an excellent meeting, to be held on 15 November at the RCPath. Follow this link for registration and details on submitting an abstract.

Finally, I hope you all manage to have a break over the summer holidays and emerge refreshed in the autumn.

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PRESIDENT'S SHIELD

by
KATH HAYDEN
President

The President's Shield is awarded each year by the current president to mark an outstanding contribution to the Association for Laboratory Medicine. This year, my choice was to award the President's Shield, posthumously, to Emma Lewis who was our director of regulatory affairs and chair of the Federation of Clinical Scientists (FCS).

Over the course of many years, Emma took on a number of roles within the association including as a member of the Education Committee, the Workforce Advisory Committee and as the FCS representative for the North-West region for Cheshire and Merseyside, sitting on the NW regional committee, before taking on additional responsibilities as first secretary and then chair of FCS and director of regulatory affairs.

Emma approached each and every one of these roles with her usual combination of enthusiasm, dedication, hard work, calmness, tenacity and good humour. She was knowledgeable and supportive in every interaction with colleagues and the members she served and had a huge capacity to take on jobs that no-one else was able to and just get on with it, in her usual unassuming way. On a personal level, Emma was a pleasure to work with, a brilliant source of help and advice, and always incredibly supportive.

It seems an entirely appropriate tribute to Emma, in recognition of her enormous contribution to both the FCS and the association, to award the President's Shield this year to her.

On Tuesday 2 July, I was delighted to be joined by Emma's husband, Mike Davies, and her son, Adam, to receive the President's Shield on Emma's behalf. My thanks to Shirley Bowles and the biochemistry laboratory at the Countess of Chester Hospital for hosting the presentation. It was entirely fitting that the presentation took place in the quadrangle, close to the laboratory, in front of the bench that has been dedicated in Emma's memory and surrounded by Emma's colleagues.

GLOBAL HEALTH WORKFORCE PROJECT UPDATE

You may remember an article in our April issue announcing the launch of the Global Health Workforce project. As a partnering organisation we're excited to bring you an update as this project enters its second quarter. For a recap on the activities planned, click here.

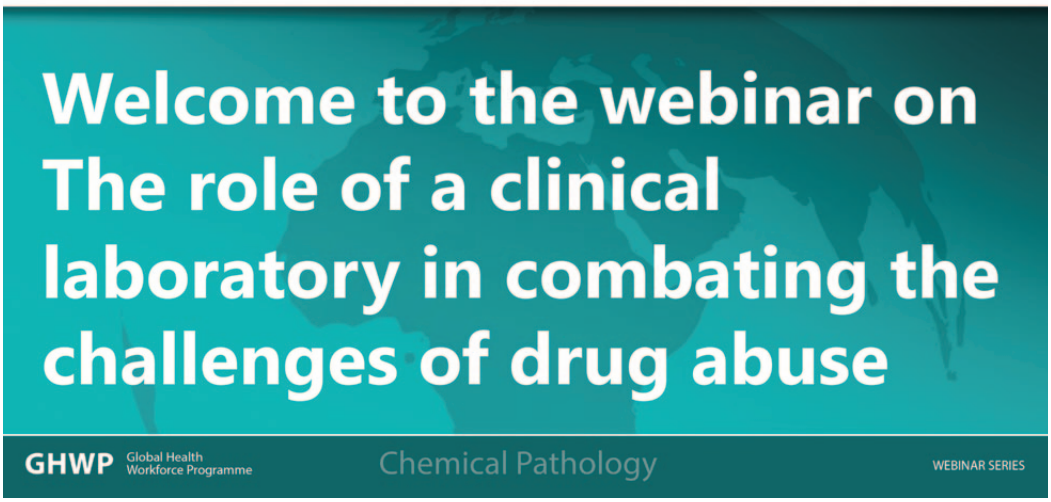
Project partners

The Global Health Workforce Programme (GHWP) is coordinated by the Tropical Health Education Trust and funded by the UK Department of Health and Social Care. The GHWP is providing nearly £9 million to build the health workforce in Ghana, Kenya and Nigeria, contributing to Sustainable Global Development goal 3.8 for universal health coverage.

A project board representing all partnering organisations has now been set up, with nine active members and three observers chaired by RCPath's International Regional Representative for Sub-Saharan Africa, John Obafunwa.

Project partners

National Postgraduate Medical College of Nigeria (NPMCN), the Ghana College of Physicians and Surgeons (GCPS), the Aga Khan University in Kenya, Association for Laboratory Medicine and the Royal College of Pathologists (RCPath)



The opening slide of the first quarterly webinar held on Wednesday 24 April, 2024

What will the project achieve?

The main goals of the GWHP are to expand the capacity of the local health workforce in Ghana, Kenya and Nigeria and to optimise the performance of these workforces. These will be achieved by addressing problems with retention and a lack of access to training and assessing curricula and policies to strengthen standards of practice.

The crucial need for investment in and development of a declining global health workforce was emphasised at the THET UK-Africa Health Summit, held in London in March. It also recognised "the invaluable contributions of diaspora health workers to global health... stressing the importance of moral recruitment practices that benefit both their countries of origin and destination, in a way that promotes 'brain gain' and not 'brain drain'."
For more information on this see 'From Drain to Gain'.

April's activity

April saw the first quarterly webinar delivered to 85 professionals located in Nigeria, Ghana and Kenya. 95 chemical pathologists from these three countries have been officially selected to participate in continuing professional development (CPD) and continued medical education (CME) activities offered by the GHWP until January 2025. Among these will be monthly case report sessions.

Stay tuned for more news, as further opportunities continue to be planned.

Title of first quarterly webinar:

The role of a clinical laboratory in combating the challenges of drug abuse

Topics covered:

An overview of drug abuse menace and its burden in a developing country:
Ojo Moses, consultant psychiatrist and head of Drug Use Disorders Treatment and Rehabilitation Unit, Federal Psychiatric Hospital Yaba, Nigeria

Laboratory screening and confirmatory tests of commonly abused drugs:
Daniel Maina, consultant clinical pathologist and assistant professor at the Aga Khan University Hospital in Nairobi, Kenya

Therapeutic drug monitoring program in a clinical setting:
Akande Adeyinka, professor of chemical pathology at the University of Ilorin, Nigeria

COMMITTEE SPOTLIGHT

MEET OUR DIRECTOR OF THE EDUCATION, TRAINING AND WORKFORCE COMMITTEE

Join Katie Hadfield, our new director of the Education, Training and Workforce Committee (ETW), as she talks about her goals for LabMed and new vacant roles.

You were previously the deputy director of ETW – what did that involve?

I had responsibility for reviewing the national education bursaries, planning and organising the training day at LabMedUK and overseeing courses like the management training and residential courses. It's been about listening to what trainees identify as gaps in education to make sure we're producing content that fills those gaps. This content is difficult to acquire – it's quite specialist and only happens in a few labs – so we try to give all trainees across our membership the opportunity to get some training in those tricky and more practical areas.

What do you want to achieve in your role over the next few years?

I would like to make sure that LabMed has a seat at the table in all the high-level workforce discussions going on; that our members are duly considered within those discussions rather than being generalised with other scientists or clinical staff, because the work we do and the needs of our workforce are different.

I'd also like to make sure the training we provide remains relevant and useful. We have a small set number of courses, and I think it's a good time for us to review what our offer is, how we deliver it and whether what we're doing right now is frequent enough, accessible and covers the right breadth of topics.

The management and leadership training, for example, is a week-long residential course and its value has been phenomenal. Everyone I know who's been on it has thought it's brilliant, but I'd like to explore how to embed

this training across the offer rather than it being something that we do separately. This would make it more available to everybody, not just the people who can get there for a week.

What is your vision for the committee?

The first thing that needs to happen is for people who are passionate about education and workforce to sit in our vacant roles (chair of the biochemistry education group and deputy director of ETW; lead for workforce; deputy lead for workforce). They'll function as a leadership team within the committee that can start driving forward the individual agendas.

I'm also really looking forward to sinking my teeth into the strategic direction of the committee and thinking about what our priorities are. Hazel has got us to an interesting point in the committee. The restructuring will be completed soon and the Learning Academy, another important project, is functional now. Some big priorities are coming off the to-do list so it's time to think about what the next ones might be.

Can you summarise the new committee structure?

The restructuring is about efficiency and having the right people in the right room at the right time. We're all volunteers. We're all coming to these roles on top of our day jobs with lots of other voluntary roles in the background, so we want to ensure our meetings are time-efficient, productive and have outcomes.

We've split out subcommittees for the workforce and biochemistry education elements so that each has the time they need for full discussions. That information will then be fed up to the overarching group to inform strategy.

Who are you looking for in the new roles?

We really want people who are passionate about the subject matter. They don't need to have been involved in LabMed business before, although some experience of working within a committee or MDT structure would be useful. The chair of the biochemistry education group and deputy lead for workforce, in particular, are roles

LIVE ACADEMY CONTENT

Four modules:

- Laboratory method evaluation
- HbA1c measurement and interpretation
- Protein electrophoresis
- ALP isoenzymes: history, genetics and analytical methods

Six cases for thought:

- Raised testosterone in a female patient
- Abnormal thyroid function tests
- Refeeding syndrome
- Hypocalcaemia
- Hyperkalaemia
- Polyuria

Numerous microbiological sequencing techniques lectures

And more to come soon!

Katie with delegates during an exercise on Training Day at LabMedUK24

that could suit someone mid-career, who is affected by the issues that the sub-group is addressing and can bring fresh eyes and ideas to what we're trying to achieve.

What else should members know?

I'd like to remind members that we're here to support trainees in their day-to-day work and they should draw on our resources if needed: the support for you exists.
We're able to give feedback to RCPath, to LabMed, to the NSHCS and for trainees facing issues in their region, the regional tutor network can draw together to help you.

We consider 'trainees' to be anybody who doesn't have their full FRCPath exams, so that's not just people in formal training programmes. We'd hope too that increasingly we're able to provide education and training across the entire membership; we know that people's CPD requirements don't stop when they finish their FRCPath exam.

Hazel Borthwick, who just stepped down as director of ETW, describes Katie as "so committed and passionate about addressing the membership's education needs." We'd like to thank Hazel for her years of hard work and leadership, and as she says, "our work with the committee on delivering training courses and virtual sessions, providing responses to the pandemic impact on laboratory services, workforce enquiries and the NHS long term workforce plan, as well as our key role in LabMed's wonderful new Learning Academy demonstrates what we have achieved in the past seven years and I know that Katie will build on these successes going forward."

Interested in becoming an author?

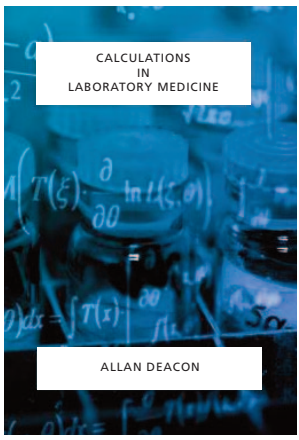
If you're interested in becoming an author, regardless of how much or little time you have, please visit our website and get in touch with us to explore what could work for you.

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:

Abd Alrasol Al Hasan, principal clinical scientist, Eastbourne District General Hospital, Eastbourne
Sefora Alam, senior biomedical scientist, Nuffield Health The Holly Private Hospital, Buckhurst Hill
Umar Anjum, senior biomedical scientist, Frimley Health NHS Foundation Trust, Wexham
Thanuja Athapaththu, speciality registrar, Milton Keynes University Hospital NHS Foundation Trust, Milton Keynes
Husamettin Erdamar, senior clinical scientist, Manchester University NHS Foundation Trust, Manchester
Enas Fadlallah, ST3 trainee, Aberdeen Royal Infirmary, Aberdeen
Priscilla Feehi, student, University of Bedfordshire, Luton
Michael Gilmore, trainee clinical microbiologist, Imperial College Healthcare NHS Trust, London
Freya Hassall, principal clinical scientist, Guy's and St Thomas' NHS Foundation Trust, London
Helen Jopling, senior lecturer, University of Manchester, Manchester
Michael Lau, registrar, Changi General Hospital, Singapore
Niamh O'Connor, clinical biochemist, Mater Misercordiae University Hospital, Dublin, Ireland
Michael O'Meara, specialist registrar in chemical pathology, University Hospital Galway, Galway, Ireland
Nithya Paranthaman, senior scientific officer, The Royal Marsden Hospital, Sutton
Chia Thing Toh, student, University Malaya, Malaysia
Ziying Zhou, student, University College London, London

CALCULATIONS IN LABORATORY SCIENCE RELAUNCHED



Perplexed by 'Deacon's Challenges' in the *LabMed News*? Involved in laboratory staff training or revising for FRCPath? Then this book is definitely for you!

The original edition of Calculations in Laboratory Science was so popular with readers, we are now excited to announce the new 2023 updated edition, available free for all our members.

This book not only presents worked calculation examples but also brings together the relevant mathematics with the relevant physical chemistry and/or physiology of commonly encountered laboratory calculations. Additional questions at the end of each topic allow the reader to practice commonly encountered calculations.

Download your free copy here.

ANNALS OF CLINICAL BIOCHEMISTRY LATEST RESEARCH ARTICLES

Check out this interesting new research article by I Mrosewski, V Dannheim, R Klett *et al*, recommended for reading by Phil Monaghan, editor-in-chief of the *Annals of Clinical Biochemistry.*

Rare coincidence: macro-thyroid-stimulating hormone and multiple manufacturer-specific interferences in thyroid hormone immunoassays. *Annals of Clinical Biochemistry*. 2024. doi:10.1177/00045632241262920

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

GET INVOLVED WITH LABMED

We're looking for members to join us in the following roles. For more details on these vacancies and more, visit our website.

Learning Academy authors

If you're passionate about education, looking to build new skills and make a meaningful impact in the field, join our Learning Academy team. The Academy is a valuable educational resource available to all our members, with a specific focus on aiding trainees preparing for FRCPath examinations. We're currently seeking writers for digital learning modules and for cases, offering an opportunity for professionals who may have less availability but would still like to contribute. Moreover, compensation is provided for all successful candidates. You'll have the support of the rest of the Learning Academy board, the Education Committee and the staff team to help you along every step of the way.

Digital learning board

The Association for Laboratory Medicine are looking to appoint three members to the digital learning board. The board will work in partnership with relevant Executive and Council colleagues, committee members, stakeholders and the staff team towards the timeline, production, review and approval of content for the Laboratory Medicine Learning Academy.

Other available roles at LabMed

- Lab Tests Online UK reviewers
- *LabMed News* associate editors

CHANGE OF PUBLICATION DATE

From August 2024 onwards, *LabMed News* will be 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 2024 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.

UPCOMING EVENTS

LabMed National Audit Day 2024

Join us at the Royal College of Pathologists, London, on 15 November 2024 for our National Audit Day. Three national audits will be presented:

- **Laboratory practice on diabetes mellitus**
  Claire Meek, professor of chemical pathology and diabetes in pregnancy at University Hospitals of Leicester and Funmi Akinlade, consultant clinical scientist, Barking, Havering and Redbridge University Hospitals NHS Trust.
- **Laboratory practice for the provision of biochemical markers of iron overload and HFE mutation analysis**
  Dimitris Grammatopoulos, professor of molecular medicine at Warwick Medical School and consultant in clinical biochemistry and molecular diagnostics at the University Hospital Coventry and Warwickshire NHS Trust
- **Wilson disease**
  Nicola Barlow, consultant clinical scientist, Sandwell and West Birmingham NHS Trust and Chris Harrington, principal clinical scientist, Berkshire and Surrey Pathology Services

Abstracts are now open to be considered for both oral and/or poster presentation at the meeting. Submissions can be made via the form on our website.

Deadline is 5pm Friday 13 September.

Other upcoming events

- LabMed Northern Ireland Regional Meeting – 27 September 2024, Belfast
- LabMed TNY Regional Meeting – 13 September 2024, Newcastle upon Tyne

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.

LABMED ANNUAL GENERAL MEETING

Annual report 2023 and the president's report

In the year we celebrated the Association's 70th Anniversary, with the highlight being a very successful LabMedUK23 in Leeds, LabMed continues its firm commitment to raising the voice of laboratory medicine, fostering higher standards and supporting its members.

SARAH GLOVER
Company secretary

The agreement of our new name and brand, together with a simplified membership structure, has supported membership growth of approximately 5% over the course of the year. Throughout 2023, LabMed increased stakeholder engagement, in particular with NHS England, the Pathology Alliance and the Microbiology Society, focussing on key areas including sustainability, diversity and inclusivity, digital/artificial intelligence (AI) and *in vitro* diagnostic regulation. Together with the RCPath and IBMS, we continue to respond and proactively engage with government on key issues including direct-to-consumer testing and the NHS workforce.

We bade farewell and thanked Jane Pritchard for her leadership during a period of change for the organisation and welcomed our new chief executive Victoria Logan in September. Our team expanded with the addition of a full-time events manager, a digital learning officer and a marketing administrator, enhancing our capacity to deliver impactful projects.

LabMed invested heavily in the education offering for members including the Leadership Summit at the IBMS Congress, the Whole Genome Sequencing course, a new mentoring platform and the pilot of our Laboratory Medicine Learning Academy. All members now have direct access to the wealth of resources available via the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM) Academy. We have invested in the support offered to regional events with the launch of a new regional events policy, enabling each region to host at least two free scientific events per year. Embracing modern technology has increased accessibility and enabled us to bring events and courses to a growing audience with a significant increase in bookings, particularly for our virtual events.

Our collective efforts and achievements reflect our ongoing commitment to excellence in laboratory medicine and we look

forward to exploring the opportunities and developments we wish to include for our next strategic period 2025-2030.

Accounts and balance sheet for 2023

We have continued to keep close management control of our finances. Victoria Logan reported that the end of year position for 2023 showed a surplus of approximately £56,000. Our expenditure did exceed our income, but the performance of our investments was better than expected, giving an overall positive picture.

Of note, 2023 saw the introduction of the new simplified membership model, being a single fee for those in the Member category with a £90 discount for those in their first five years of membership. This resulted in slightly less income from membership compared to previous years as we adopted the new structure. We also saw our expenditure to deliver member services increase.

Currently, approximately 30% of our income comes from membership subscription fees, just under 40% comes from chargeable activities including publications and training courses and the remainder from commissioned projects.

We continue to diversify our income streams so spreading any risks and we are successfully growing grant funding, industry sponsorship and engagement. We continue to improve our reporting and governance with the establishment of a 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. In order to close this gap, it was the recommendation by the director of finance and the Association Council that we increase subscription fees by 6.25% for those in the Member category and the subscription fee for the Federation category be increased to £125 from 1 January 2025, which was agreed by the members present.

Election of president-elect, officers and a national member

Following a call for applications, review by the Nominations Committee and recommendation to Council, Ian Godber has been elected to become LabMed's next president from the AGM in 2025.

All our honorary officers remain in post for at least the coming year, with the exception of Hazel-Ann Borthwick and Emma Lewis, who very sadly passed away last year. **We announced the unopposed elections of Katie Hadfield, director of education, training and workforce, Michael Cornes, director of regulatory affairs/FCS chair, Alison Whitelegg, chair of the Immunology Professional Committee and Helen Duce, national member.**

Membership awards and president's shield

We are delighted to announce the following awards agreed at the AGM:

Emeritus member of the association
Chris Chaloner, nominated by the North West Region and Tony Fryer, nominated by the West Midlands region.

Fellow of the association
Mary-Anne Preece, nominated by the West Midlands region.

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.

MEET YOUR TRADE UNION'S NATIONAL OFFICERS

Did you know that all qualifying members of the Association for Laboratory Medicine are automatically members of the Federation of Clinical Scientists (FCS)?

The FCS is a certificated trade union run by and for clinical scientists. It is responsible for the collective negotiating and representation of individual members in the NHS at local, trust and national levels, and with the UK Health Security Agency (UKHSA) and NHS Blood and Transplant. With full national recognition and negotiating rights, the Federation represents all members, including trainees, of the following specialities: clinical biochemistry, genomics, immunology, microbiology, haematology and other clinical scientists.

In this issue, we introduce your national officers for geneticists (Gail Norbury) and microbiologists (Seshadri Vasan), and our post-registration FCS rep (Kathryn Price). All three are FCS Executive Committee members. Gail is FRCPath and a consultant clinical scientist for clinical genetics at the Guy's and St Thomas' NHS Foundation Trust. She has an MA in biochemistry from Oxford and an MSc in clinical biochemistry from Surrey. She is also an AHCS assessor and RCPath examiner. Vasan is a virologist who goes by his surname. He obtained his doctorate from Oxford and is the director of research and development and deputy Caldicott guardian for NHS Grampian. Kathryn is a senior clinical scientist in clinical biochemistry at East Suffolk and North Essex NHS Foundation Trust. She obtained her doctorate and masters in medicinal and pharmaceutical chemistry at Liverpool and an MSc in clinical science at Manchester. She's currently a local rep from her trust as well as rep for the Trainees' Committee.

Gail and Vasan typically support members who are facing changes and uncertainty in their working life. This includes being transferred to another employer and/or changes to the way a service is delivered due to operational or technological reasons.

GAIL NORBURY

National officer for geneticists

SESHADRI VASAN

National officer for microbiologists

KATHRYN PRICE

Post-registration FCS rep

TAKE PART IN YOUR TRADE UNION

National negotiator

Could you be our next national negotiator for the trade union (Federation of Clinical Scientists)?

In return you get to build on your professional skills and make a significant impact on your colleagues in laboratory medicine. You'll become one of our national officers, who negotiate at a national level on all matters involving industrial relations and conditions of employment.

Mike Cornes, outgoing national negotiator says "the knowledge I have gained through this role has had a significantly positive impact on my career progression".

The deadline for applications is 23 August so be sure to send in your nomination form by then, available here.

Regional representatives

Along with our national officers, our trade union regional representatives form the FCS National Committee.

We're looking for additional regional representatives to support our local hospital representatives with members' cases. This role offers you the chance to gain impressive and invaluable experience you'd be hard-pressed to find anywhere else.

Local hospital representatives

As a small but specialised trade union we are always seeking more representatives. As a local rep you'll be the first point of call for colleagues in your department who are experiencing difficulties at their workplace. You'll receive comprehensive and continuing training on a wide range of topics to help you carry out your role confidently, all while you hone a unique and highly beneficial skillset.

For any further information on roles with the FCS trade union please contact Mike Lester, LabMed membership manager at mike@labmed.org.uk

Union AGM reminder

The Annual General Meeting of the FCS Trade Union will take place via MS Teams at 1pm on Monday 9 September 2024, immediately after the FCS training session on negotiating at a local level which commences at 12pm that day, and all members in the Federation and Member categories in the UK are invited.

We look forward to seeing you there!

Our statement to members issued in connection with the union's annual return for the period ended 31 December 2023 as required by Section 32A of Trade Union and Labour Relations (Consolidation) Act 1992 can now be viewed here.

CONFERENCE REPORT

LABMEDUK24 CONFERENCE BRIGHTON

KATH HAYDEN

President of the Association for Laboratory Medicine

It was a pleasure to open this year's LabMedUK annual scientific conference and welcome everyone to Brighton. With a programme packed with incredibly interesting topics, the first challenge was trying to decide which of the parallel sessions to attend, such was the standard of the areas to be covered.

This year's plenary lectures offered a breadth of nationally and internationally recognised scientific and clinical research. The programme commenced with the International Award Lecture with Octavia Peck-Palmer, president of the Association for Diagnostics and Laboratory Medicine (ADLM) and associate professor of pathology, critical care medicine and translational science at the University of Pittsburgh, speaking about how laboratory medicine can lead the way in translating data analytics to identify and eliminate health disparities. A really thought-provoking session that highlighted the many weaknesses in the evidence used to develop our current guidelines, and the work we need to do to reach under-represented groups in our local populations.

Our second plenary lecture of the day was our Impact Award Lecture, where this year Catherine Dibden, consultant clinical scientist in biochemistry at Barnsley and Rotherham Hospitals, was recognised for the initiative to implement a new chest pain pathway in the emergency department (ED) during the COVID-19 pandemic. A higher hs-cTnI cut-off and different risk scoring algorithm were developed enabling an additional 20% of patients to be discharged home after a single troponin result, with an audit undertaken post-implementation demonstrating comparable patient outcomes to the old pathway whilst producing a saving of over 800 hours of patient stay in the ED annually.

Wednesday's programme headlined with the Laboratory Medicine Foundation Award, presented each year to recognise an outstanding contribution to laboratory medicine. This year we recognised Brian Keevil,

consultant clinical scientist in biochemistry at Wythenshawe Hospital, Manchester University NHS Foundation Trust and honorary professor at the University of Manchester, for his pioneering work in developing novel mass spectrometry methods for the measurement of steroids and therapeutic drug monitoring.

The session focussed on how assays for salivary steroids have been developed to aid in the investigation of endocrine disorders, and in particular the major role salivary cortisone can play in the investigation of adrenal dysfunction.

For our final plenary lecture, on behalf of the Royal College of Pathologists, we were delighted to welcome Graeme Eisenhofer to deliver the Flynn Award Lecture, where he presented his work with the laboratory and clinical research groups at University Hospital Dresden on integrating mass spectrometry data with AI to build clinical support systems for the investigation of adrenal disorders. The aim of the system now developed is to use LC-MSMS steroidomics and AI to allow a route from a patient presenting with endocrine hypertension to operation without the need for additional testing or adrenal vein sampling.

THANK YOU TO OUR LABMEDUK24 SPONSORS

We'd like to say a big thank you to our conference sponsors for their participation in LabMedUK24. They held some highly interesting workshops for delegates, which all received a great turnout. Their stands in this stunning hall were also really popular with our members; take a look at our photos on the following pages.

GOLD SPONSORS

BD

Delegates at the BD stand in the exhibition hall

Roche

Delegates at the Roche stand; Roche also held a workshop on cobas Mass Spec: the future of clinical mass spectrometry testing – transforming reference into routine

SILVER SPONSORS

Beamtree

Beamtree workshop: RippleDown – curated AI solutions for the clinical laboratory (left); delegates near the Beamtree stand (right)

Binding Site

Delegates at the Binding Site stand (left); workshop on the EXENT System: transforming monoclonal protein diagnostics with an innovative mass spectrometry solution (right)

Biohit

Delegates at the Biohit stand (left); Biohit workshop: urinary Dkk-3 as a CKD progression marker (right)

SILVER SPONSORS

Mast Group

Mast Group workshop: faecal haemoglobin and calprotectin testing: the good, the bad and the ugly (left); delegates at the Mast Group stand (right)

Siemens

Siemens workshop: chronic liver disease: a diagnostic challenge (left); delegates near the Siemens stand (right)

YourBio

YourBio workshop on paradigm shifts in phlebotomy: providing reasonable adjustment for underserved patient populations (left); delegates at the YourBio stand (right)

LABMEDUK24 – POSTER EXHIBITION AND THE VALUE OF CONFERENCE PROCEEDINGS

ELIZABETH HALL
Editor of *Annals LabMedUK* supplement

The poster sessions at the LabMed national conference are a key way for members to share their innovative work. Writing a poster abstract is an important skill for junior scientists, hopefully a first step towards writing a short report or even a full paper. The poster abstracts are all published as a supplement in the *Annals of Clinical Biochemistry and Laboratory Medicine*. This ensures that more people can read about your work and the reference can also be added to your CV.

The poster process

Preparation for 2024 started in February when authors submitted their poster abstracts. The Scientific Committee reviewed all the abstracts and made selections for the interactive clinical cases session, the poster prizes and the Medal Award. Once accepted, authors started designing their posters, writing their presentations and securing funding to attend the meeting. At Brighton the posters were displayed close to the exhibition area, and the attended poster session at lunchtime was a chance for delegates to talk to the authors, ask questions and exchange ideas. Posters are now displayed in their home laboratories, while delegates can access PDFs of posters on the LabMedUK webpages.

Conference proceedings

This year 106 abstracts have been compiled into a supplement, which will be linked to an editorial in the September issue of the *Annals*. The editorial, written by the LabMed president and the director of conferences and events, summarises the highlights of the conference and records the award winners. The supplement is the result of an intricate editorial process and takes over four weeks to finalise from the time abstracts are accepted.

I have had the great pleasure of being editor of the conference supplement since 2013. It is always a privilege to read all the abstracts and learn about the

research and audits being done in labs around the country to tackle the problems and questions we all face day-to-day. But producing the supplement would not be possible without the hard work of Nikki Williams of NAB Services and the team in the LabMed office.

The full abstracts from the last eight national meetings are available on the *Annals* website. They can be difficult to find, so here is a handy table.

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	September 2024; 61 (5)	'Supplementary material' at bottom of Editorial

LABMEDUK24 SOCIAL MEDIA – THANK YOU FOR POSTING!

Thank you to everyone who posted on social media – here are just a few of the posts from our members

Cat Dibden FRCPath · 3rd+ + Follow
Consultant Clinical Scientist (Biochemistry)
1mo · Edited ·

Thank you Association for Laboratory Medicine for giving me the opportunity the speak today in the Impact Award lecture at #LabMedUK24 - "Saving precious pandemic ED waiting time with a new Chest Pain Pathway".
It's been wonderful to connect with colleagues and commercial sponsors and hear more about some amazing developments and insights in the many varied and fascinating facets of clinical biochemistry and laboratory medicine. Thanks to all involved in putting together such an interesting educational programme!

Sam Salisbury · 3rd+ + Follow
STP Clinical Scientist Trainee (Biochemistry) at Exeter Clini...
1mo · Edited ·

My Poster! I'm quite pleased with this, so I want to show it off a bit! This summarises the work I've been doing alongside Mary Stapleton and Mandy Perry from Exeter Clinical Laboratory Biochemistry, Sam Musson from the RDUH Epic Beaker team, and our lovely Paediatrics team at Royal Devon University Healthcare NHS Foundation Trust.

I've been testing a way to make checking for jaundice in newborn babies quicker and easier - really important in premature babies who are especially at risk of brain damage if it isn't caught quick enough!

You can still see my poster on board A6 in the poster hall at #LabMedUK24 until 17:30 this evening.

Otherwise you can see the poster here if you are interested:

https://lnkd.in/e7C8tfdZ

#labmeduk

Fiona Riddoch · 3rd+ + Follow
Consultant Clinical Scientist in Point of Care Testing, for Be...
1mo ·

Day out!
On Wednesday I was delighted to attend Association for Laboratory Medicine #LabMedUK24, and show 2 posters highlighting our work in BSPS Point of Care Testing.

Advancing renal function testing; point of care creatinine method provides accurate eGFR. Is it time to integrate into AKI?
Fiona Riddoch, Reanna Allen, Mark Sleeman, Helen Bruce, Katy Heaney.
- We showed the excellent correlation for creatinine between our Radiometer ABL90 FPs analyser and the BSPS blood sciences laboratory, and accompanying eGFR verification for >2000 paired samples.
Next stop #POCT in #AKI reporting.

The dangers of duplicating d-dimer testing: a case of patient harm and clinical confusion.
Fiona Riddoch, Bethan Phillips, Katy Heaney
- We have demonstrated the excellent clinical performance of our Radiometer AQT90 Flex d-dimer assay, with fewer false positive than the main lab assay. This case of a lab false positive resulted in a prolonged hospital stay, many unnecessary scans and blood tests, and a lot of anxiety for this patient.
Is it time to consider standardisation of d-dimer assays?

UK NEQAS The UK Kidney Association British Society for Haematology Royal College of Pathologists (RCPath)

And finally, it was fantastic to catch up with old colleagues and some former trainees, and learn about what they are up to now.

Sarah Curtis · 3rd+ + Follow
Topol Digital Fellow | Clinical Informatician | Consultant Clin...
1mo · Edited ·

Was a privilege to speak at LabMedUK24 today, presenting insights from Cheshire & Merseyside Pathology Network on collaborative design and implementation of care sets and profiles for clinical requesting.

#LabMedUK24 #LabMedUK

Shannon Rees · 3rd+
Trainee Clinical Biochemist
1mo ·

+ Follow

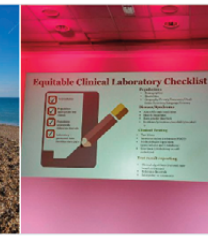
Finishing off an excellent afternoon at #LabMedUK24 looking at dynamic function testing for the biochemistry trainees day. This was a great opportunity to refine my understanding of protocols and interpretation of results with fellow trainees. I particularly liked the interactive approach to a comprehensive overview of a range of different DFTs. A very useful workshop for all those endocrinology competencies on the #scientisttrainingprogramme and future practice!
Thank you again to the speakers and organisers at Association for Laboratory Medicine for an excellent day and to Roche and BD
#labmeduk

Tom Ford @t_ford1408 · Jun 11

Time for paediatrics. Some great lectures including oxysterols, Niemann-Pick type C, and Cerebrotendinous Xanthomatosis. @LabMedNews
#labmeduk24 #labmeduk

Jennifer Brady @JenniferJBrady · Jun 11

Lovely day in Brighton for the start of #labmeduk24 starting with a thought provoking plenary from @Clin_Chem_ADLM president Dr Octavia Peck Palmer about health inequality and how we can erradicate this in the laboratory
@ACBIrl @LabMedNews



ENVIRONMENTAL IMPACT OF CHRONIC DISEASE MONITORING, UNNECESSARY TESTING AND SPECIMEN REJECTION

BECKY JONES
Principal clinical biochemist
Royal Shrewsbury and Telford Hospitals NHS Trust

The Choosing Wisely® campaign was established over ten years ago by the American Board of Internal Medicine with goals dedicated to ensuring care was: 1) supported by evidence; 2) not duplicative of other tests or procedures already received; 3) free from harm; and 4) truly necessary.[1] This was an important campaign, and its ethos resonates today with respect to unnecessary testing and its associated fiscal, psychological, and importantly, environmental consequences. Blood testing practices in general practice in the UK have recently been examined in a collaborative project between researchers at Bristol University and Primary Care Academic CollaboraTive (PACT) titled, 'Why Test?'.[2] They retrospectively examined blood test requests and deemed around 25% to be unnecessary and found just 6% contributed to, or confirmed, a diagnosis. To elucidate factors contributing to unnecessary testing and gauge opinion about what could be done to reduce it, Choosing Wisely surveyed American physicians.[3] The top reasons for over-requesting were due to concerns about malpractice, wanting 'to be safe' and for reassurance.[3] Other reasons cited were to 'keep patients happy'.[3] When asked about a range of potential solutions, the most popular suggestions were to reform malpractice; have evidence-based testing practices; spend more time with patients and to change the system of financial rewards physicians receive for ordering tests and procedures.[3]

Chronic disease monitoring

In the UK, primary care providers receive incentives and rewards for meeting chronic disease monitoring targets outlined in the Quality Outcomes Framework.[4] Over the next two decades, people will live for longer and the burden of chronic disease will increase.[5] A rise in demand for testing can be anticipated. It has been demonstrated that frequency of chronic disease monitoring can be reduced

without causing harm for certain conditions. During the COVID-19 pandemic, patients prescribed disease-modifying antirheumatic drugs (DMARDs) for rheumatological disorders such as arthritis had their blood test monitoring regimens reduced from three to six months.[6] Reduced monitoring did not lead to more abnormal results.[6] This reduction could be significant as it is estimated that DMARD monitoring may contribute up to 10% of the annual workload.[6] Reducing monitoring frequency (when safe to do so) can benefit both the patient and the environment.

Specimen rejects

Approximately 60% of errors are attributed to pre-analytical factors, including poor specimen quality (e.g. clotted, haemolysed, underfilled), inadequate labelling and insufficient specimen volume.[7, 8, 9] Most laboratories will have criteria for rejecting specimens when alerted to such errors, but at what cost to the environment? The carbon footprint and contribution to waste from sample rejection has recently been estimated by a biochemistry department in Istanbul, Turkey.[9] Approximately 4% of total samples analysed (~7,300,000) between 2021-22 were rejected.[9] They estimated this contributed 12.3 tonnes CO_2e and generated 3.7 tonnes of medical waste (for context, Turkey's total CO_2e value for 2021 is reported as 564.4 million tonnes).[9] Recommendations for blood sampling have been published by the EFLM pre-analytical working group, along with educational material.[10] These resources could be distributed to teams in emergency care and in other relevant departments with the aim of improving specimen quality and rates of avoidable errors.

The laboratory can also apply minimum retesting intervals to manage the demand for tests that are too frequently or inappropriately requested. There have been a reported 2,691,591 tests rejected over a 10-year period (from 27 studies) contributing an estimated 145 to 485 tonnes of CO_2e.[11] Reducing unnecessary venepuncture, rather than sample rejection, will likely have a greater impact on reducing CO_2e since specimen collection generates the most emissions of the entire analytical process.[12, 13] We would be interested to hear from members who have successfully managed the demand for tests at source, and ideally which reduces unnecessary venepuncture, particularly for those tests more commonly requested inappropriately such as Hba1c and lipids.[14]

References

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THE DUTY BIOCHEMIST WILL SEE YOU NOW – PATIENT ACCESS TO RESULTS

by

JESSICA JOHNSON

ST5 chemical pathology, Sheffield Teaching Hospitals NHS Trust

RUE BALL

Principal clinical scientist, Synnovis, St Thomas' Hospital London

It is becoming increasingly common for patients to be given direct access to their laboratory results through a website or smartphone application, instead of only accessing them through a healthcare professional. Patients in secondary care can already do this in one of our hospital networks. Giving patients direct access to healthcare resources digitally was even referenced in the current Labour government's 2024 manifesto, which pledged to "transform the NHS app, putting patients in control of their own health to better manage their medicine, appointments, and health needs". However, laboratory results alone do not put patients in control – to do that the lab and clinical teams need to tell the patient what the results mean. If patients can access their results directly, the way labs provide this interpretation will need to change to accommodate it.

Comments are one important way that labs communicate the meaning of results. These are usually addressed to clinical staff but may need to be written differently if patients are also reading them. The 2014 ACB guidelines for interpretative comments addresses this, saying "In addition to avoiding the unnecessary use of medical terms and abbreviations [writing for patients] also means avoiding unsubstantiated statements or wording that could be interpreted as being pejorative". We think that it is impossible to completely avoid medical terms, but comments could still be made understandable to people who aren't familiar with them. A good way of doing this is to compare your comment to patient-focussed resources such as those on LabTestsOnlineUK. For example, a comment one of us wrote for the UK NEQAS for Interpretative Comments scheme included "CK is over 30xULN. Possible rhabdomyolysis, at risk of AKI". This could have been written to be more accessible to patients without compromising its meaning: "CK is over 30 times normal upper limit. This may be caused by rhabdomyolysis (muscle damage), which if present could

cause AKI (kidney failure)". Unfortunately, such a comment is unlikely to score well in the UK NEQAS, which has a 250 character limit, and appears to award the best marks to comments that prioritise information density over patient intelligibility.
An example of a real comment we have used is "not UKAS accredited". This comment is confusing because it contains an obscure acronym and it doesn't explain the implications of the test not being accredited. When the comment is entered into search engines, the top results do include an official UKAS web page, but patients are likely to come away from it with the impression that unaccredited results may be inaccurate. This is not necessarily true; results with this comment are usually awaiting UKAS approval but have the same standard of quality as other tests in medical laboratories. This can lead to patients unnecessarily worrying that their results might be wrong, which did lead to a patient contacting one of the authors' laboratories.

Most UK laboratories have a policy that they do not talk directly to patients, but instead communicate with their care team. This is because labs usually have very little clinical information about patients and so they cannot provide reliable individual advice. However, direct patient access to results may make them more likely to contact the laboratory, like in the previous example. Patients may call the duty biochemist phone number if it is given in a comment, and we have heard of a case where a clinical scientist signed their name at the end of a comment and a patient used it to find their work phone number on the social network LinkedIn. Patients even sometimes pretend to be healthcare workers on the phone – one of us received a phone call from a person claiming to be a GP, who managed to sound authentic until they started pressing very hard to be told whether the patient needed to be referred to a cardiology clinic on the basis of the laboratory results.
The caller hung up after being challenged on their baffling interactions. These issues might make laboratories more cautious about putting names and contact details on comments, even if it could create difficulties for clinicians who need advice.

If the policies of not talking directly to patients continue, laboratories' knowledge of the clinical context will be limited by what clinicians tell them. This will limit their ability to give patients a meaningful interpretation of their blood test results, which may lead to confusion and worry. An example we encountered was when a pregnant patient was told by her healthcare provider that her results were all 'normal', however, when she accessed her results directly in her provider's application, she noticed her ALP of 200 IU/L was flagged as high. This ALP is explained by the production of additional ALP by the placenta during pregnancy, and her results are only being flagged as high because they were inappropriately compared to the non-pregnant reference interval. However, the patient was not told about this, and worried that the healthcare staff had ignored a clinically significant abnormality and that she wasn't receiving good quality care. Issues like these could be fixed by requiring clinicians to provide more clinical information, or extracting it automatically from electronic records, then using it to provide more context-specific interpretation. This would probably benefit patients and less experienced clinicians, but it would also be a lot of work to implement, whether as manual review or automatic rules. Laboratories would need to prioritise clinical interpretation that creates the most value for patients.

With patient access to results a reality for many laboratories, there are steps they can take to adapt, including changing how they write comments, changing how the lab's contact information is provided, and asking for and using more clinical context when reporting results.

EXPERIENCE OF THE CLINICAL DATA SCIENCE PROGRAMME

The University of Manchester was commissioned by NHS England in collaboration with the National School of Healthcare Science to develop a flexible programme of learning in clinical data science, supporting topics such as statistics, machine learning and programming. The full programme began in September 2023 with a significant number of NHS England funded places for anyone working in or delivering services to the NHS. The course aims to empower healthcare professionals to apply data science in practice and translate data into patient benefit. This educational programme supports the development of data science skills by employing four core modules in clinical data engineering; data visualisation and communication; maths, stats and machine learning; human factors and digital transformation. Completing the course leads to a 60-credit postgraduation qualification (PGCert) in clinical data science.

I was incredibly lucky to secure a place on the Clinical Data Science Programme. It is important to note that the programme does not aim to train healthcare practitioners to become data scientists. Instead, the aim is to give professionals across the board the opportunity to develop their data science skills and drive digital transformation in their clinical practice. I have been a strong supporter of the use of data analytics and new-generation data processing pathways in pathology. However, my skill set was limited in the field of computer and data science. I aimed to gain skills that allow me to use the data available to me in creating innovative solutions to problems identified in the laboratory. I have thoroughly enjoyed each module of the programme and felt more skilled in understanding the theory behind each topic as well as the data science jargon. Practical tasks on Jupyter Notebooks (interactive notebooks that contain code) with thorough explanations allowed me to feel more confident when writing my own code. Several face-to-face days and group activities on the course helped me build lasting friendships with other healthcare professionals and build a professional network. Overall, the course has provided me with computational and analytical skills to make use of the data available to me, adding value to the clinical side of my work to ultimately benefit patients.

MONIKA JANKUTE

Senior clinical scientist in biochemistry at University Hospitals Birmingham NHS Foundation Trust

"I encourage every trainee in pathology interested in data analytics and digital transformation to visit the Clinical Data Science Programme website for more information and consider putting their application in for the next programme intake"

Further information

Click here for further information on the Clinical Data Science Programme.

I REMEMBER WHEN...

A TRIP TO POOLE: QUEEN ELIZABETH II OPENS POOLE GENERAL HOSPITAL

IAN FARRANCE
Retired director of clinical biochemistry

The year was 1969 when I had the very great pleasure of a short 'chat' with His Royal Highness Prince Philip, the Duke of Edinburgh. And yes, this is actually true, not the demented mumblings of a retired clinical biochemist. However, the actual details leading to this event are somewhat convoluted and require further explanation.

From my perspective, the story starts at the Royal Women's Hospital (RWH) in Melbourne. I had been working at RWH for nearly three years when David Campbell succeeded Derik Watson as director of clinical biochemistry. Dr Campbell had arrived from England and was very complementary of a new postgraduate qualification recently introduced by the Association of Clinical Biochemists (and others) called the Mastership in Clinical Biochemistry (MCB). He also had first-hand experience with the relatively new Technicon AutoAnalyzer (AA) instrumentation and was keen to introduce this technology at the RWH. This was indeed achieved in 1966-1967 with several early model AA1 modular systems. For a relatively new graduate (with a dual major in biochemistry and organic chemistry) this was a truly remarkable advance in analytical chemistry

Left: Arrival of Queen Elizabeth, guard of honour at front entrance to the hospital.
Right: Queen Elizabeth entering the pathology laboratory.

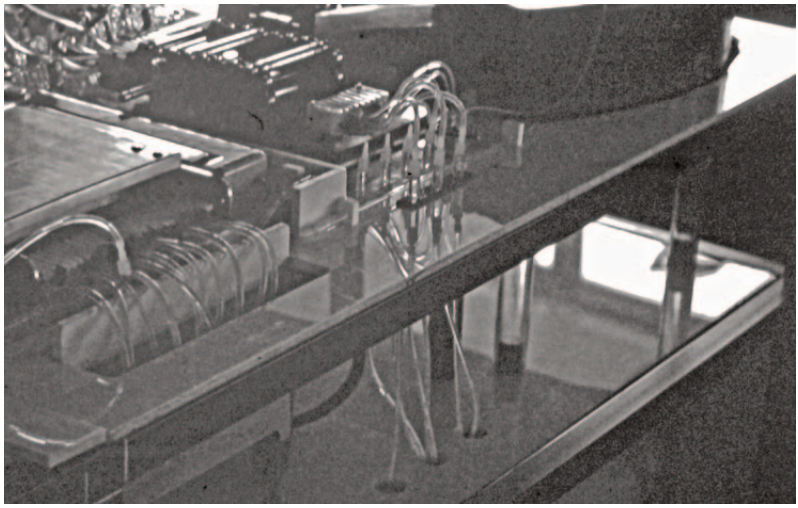
and provided many opportunities to practice 'real chemistry'. In addition to my fascination with AA procedures, discussions with Dr Campbell regarding further studies in clinical biochemistry eventuated with him obtaining a graduate position for me within the Bournemouth and East Dorset Group Pathology Service in Bournemouth, England. So, in October 1967, my wife Pat and I set sail on our new adventure. We arrived at Southampton on 18 October 1967 after a three-week sea voyage aboard the P&O ship, Oriana.

The Bournemouth and East Dorset Group Pathology Service provided pathology services to local doctors and the (then) three major hospitals in the Bournemouth and Poole areas: the Christchurch Hospital, Boscombe Hospital (Bournemouth) and the soon-to-be-completed (new) Poole General Hospital. The clinical biochemistry unit also provided a regional PBI service, which used a dedicated AA system incorporating a Technicon continuous digestion unit which required a high degree of patience and dedication in order to tame.[1,2] In 1967, the pathology service was based at Boscombe Hospital, with the intent to move to the new Poole General Hospital when this was completed. As the Poole Hospital was to be an NHS show piece, funds to equip the laboratory were claimed to be readily available. In addition, the NHS was about to trial computer technology which was just becoming available for ancillary services such as pathology. As a consequence, the Poole laboratory was provided with one of only six Elliott 903 computers which could be used to directly capture the signals from AA colorimeters.[3]

1967 was also a turbulent year in the UK, particularly from a financial perspective. To a naive young Australian, international finance was of no concern. The first ever devaluation of the British pound occurred on 18 November 1967, not long after our arrival. From a personal perspective, this devaluation was of considerable concern as to how it would impact our meagre savings which had just been transferred to a UK bank from Australia. This devaluation also contributed to a series of events which changed the approach to clinical biochemistry in Bournemouth/Poole (and probably to other laboratories in the UK).

Arriving in the UK and starting my new job under the leadership of James (Jim) Johnston (consultant biochemist) and Anthony (Tony) Rickards (senior

In-house assembled AutoAnalyzer, front view



In-house assembled AutoAnalyzer, partial view of pumps and manifold

pathologist), the plans for the new Poole Hospital were eventually revealed. The laboratory was to be fully equipped with the latest equipment, including a computer. From a clinical biochemistry perspective, my fading memory still seems to recall that a Technicon SMA 6/60 and a SMA 12/60 had been planned but this order had been cancelled by 'higher authority' due to the recent devaluation and concerns with regard to foreign exchange (as both of these instruments had to come from the USA). As an alternative, an appropriate number of individual AA modules could be purchased, as these could be sourced from Ireland. So, what was to be ordered?

In order to answer this question, a further diversion is required. As part of my employment within the Bournemouth and East Dorset Group Pathology Service I had been supported with an enrolment for the MCB. On one occasion, Dr Rickards had arranged for me to spend a day at the Hammersmith Hospital laboratory, a laboratory well regarded for its innovative testing procedures and automation. To my very great surprise when arriving at Hammersmith, I was greeted by Ian Wootton. I was well aware of professor Wootton's background and clinical biochemistry (chemical pathology) expertise through his publications and in particular his informative book which was very much a leading text at the time: *Micro-analysis in medical biochemistry*, originally written by EJ King, re-edited by King and Wootton, and updated by Professor Wootton in 1964 to include AutoAnalyzer procedures.[4] As Professor Wootton's contributions to clinical biochemistry were well known and highly regarded, it was a pleasant surprise to have him as my host for the day.

The item which really caught my attention at Hammersmith, as a possible solution for only allowing 'basic' AA modules to be purchased for Poole, was a 'home-made' multi-channel Technicon style analyser made from AA1 parts and modules. This was laid out on what could be described as a large table (similar to a table-tennis table), with one Technicon AA1 sampler and the aspirated sample being split to provide several test channels (12 channels?). Each test channel had its own separate chemistry operating through several shared Technicon pumps and other required items (dialyzers, water baths, oil heating baths, etc). Each chemistry channel had its own flow-through colorimeter and recorder at the end of the process. Thus, from each patient sample, multiple chemistries could

be performed. Very similar in principle to what Technicon were offering in their 'pre-packaged' SMA analysers.

So, with only Technicon modular components, what was to be ordered for Poole? Following numerous discussions with Dr Johnstone it was decided to 'build' our own multi-channel analysers from individual Technicon modules, glassware and fittings. Test groupings were relatively easy to decide (LFTs [including total protein and albumin], electrolytes, urea, creatinine, calcium, phosphate, alkaline phosphatase, total protein, albumin), plus several single channel tests such as uric acid.
The grouped tests were to be set up together and arranged on purpose-built steel square-tubing frames with Perspex 'bench' tops on which the relevant mixing coils and glass fittings were attached. Individual modules such as pumps, dialysers and heating baths were appropriately positioned in cut-out sections within the Perspex 'bench' tops. Reagents were positioned beneath the Perspex 'bench' top and recorders at eye level on a raised section of the frame.
The photographs within this article endeavour to show the manner in which these 'in-house' AutoAnalyzer's were constructed. As the Boscombe laboratory already had a multi-channel electrolyte system, this was to be transferred to Poole when required. As part of the electrolyte system, sodium and potassium were determined with an early model Technicon flow-through flame (emission) photometer which could easily be mistaken for a jet engine when in operation.

Eventually, the 'big day' arrived: the main automated procedures had been transferred to the Poole Hospital laboratory, the Elliott computer was operational (taking AA colorimeter and flame photometer readings as they occurred, calculating test results, and after much manipulation using paper tape, sending patient results (reports) to Boscombe and Christchurch hospitals using teleprinters connected to the telephone network). Queen Elizabeth and Prince Philip were to officially open the Poole General Hospital and there was much activity surrounding preparations for the event. The official opening occurred on 11 July 1969.[5]

With our newly developed AutoAnalyzer systems in full operation and everyone appearing to be diligently working, the Royal party briefly visited the pathology laboratory during their guided tour of the hospital. While Queen Elizabeth was talking

Elliott 903 computer in its own special room

In-house assembled AutoAnalyzer, rear view

to senior hospital and pathology staff, Prince Philip actually broke ranks and headed in my direction. I had volunteered to operate the electrolyte system that day and with the flame photometer performing at its loudest and all test channels working well, Prince Philip came over and asked what tests I was performing and how the 'technology' worked. In the next few minutes, (probably four or five), I endeavoured to explain how an AutoAnalyzer worked and the key role and importance of the bubbles. Even though my meeting was brief, it certainly provided a memorable experience. As an end to this chapter in my career, I received my MCB on the 16 September 1969 and in early 1970 I was offered a senior position in chemical pathology at Prince Henry's Hospital laboratory in Melbourne. Having now decided to return to Australia, we left Southampton on our return sea voyage on 30 March 1970.

Notes and references

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4. As a tangential comment, the two main texts which I used for my MCB study were *Biochemical disorders in human disease* edited by RHS Thompson and EJ King (with the third edition to be edited by RHS Thompson and IDP Wootton), plus *Clinical chemistry, principles and technics*, by RJ Henry. Both of these texts I can clearly remember reading from cover to cover at least twice, with many chapters being read on multiple occasions.
5. The Queen and Prince Phillip open the Poole General Hospital in July 1969. https://pooleshealthrecord.wordpress.com/2019/09/04/poole-hospital-by-royal-appointment

LETTER TO THE EDITOR

GENDER AFFIRMING HEALTHCARE FOR CHILDREN AND YOUNG PEOPLE

The following is an open letter to the Secretary of State for Health and Social Care, Wes Streeting, regarding gender-affirming care for trans and gender diverse children. Other clinicians and scientists can also include their signature by following this link: before 31 August 2024.

by

RUE BALL

Principal clinical scientist, Synnovis, St Thomas' Hospital

LORENZ K. BECKER

Senior clinical scientist, Blood Sciences, Bolton NHS Foundation Trust

Dear Mr Streeting,

We are a group of individual clinicians and scientists working in medical laboratories for the NHS. We use our expertise to help diagnose and treat patients in all areas of healthcare.

We are writing to you in our personal capacities to express our concerns about the changes made by the previous administration to gender-affirming care for trans and gender diverse children. All care in the NHS should be guided by clinical expertise, service users' lived experience and the best available evidence, but since 2020 many changes to gender-affirming care have not been informed by any of these.

The Cass Review has been a major justification for these changes and falls short of these standards. The original terms of reference for the Cass Review's assurance group explicitly excluded experienced clinicians and service users, stating that it "deliberately does not contain subject matter experts or people with lived experience of gender services". The review also included advisors who had previously advocated for bans on gender-affirming care in the USA. The conclusions of the Cass Review have been criticised by expert bodies, including the World Professional Association for Transgender Health, the Endocrine Society, the Canadian Paediatric Society, the Australian Professional Association for Trans Health and the American Academy of Pediatrics. A white paper co-authored at the Yale School of Medicine said that the contents of the Cass Review "reveal profound misunderstanding of the evidence base", the review "subverts widely accepted processes for development of

clinical recommendations", and it "violates its own evidentiary standards by resting many conclusions on speculation".

Some changes that the Cass Review has been used to justify are that trans children and young people have not been prescribed GnRH agonists (puberty blockers) by the NHS since December 2020. On top of this, the previous administration rushed out legislation criminalising private prescriptions in May 2024. NHS England also decided in 2022 to shut down the previous provider of gender-affirming care for children and young people, but according to a whistleblower the replacement services have fewer staff and the majority of them have no experience with trans youth. As of April 2024, 5,676 children and young people are on the waiting list for a first appointment, with some having waited more than five years. The grim consequence of these restrictions has been an increase in suicides in trans children and young people on the waiting list for care.

We ask that in your capacity as the Secretary of State for Health and Social Care, you don't politicise the care of trans youth, and instead make sure the NHS remains a truly universal healthcare system, where care is guided by clinical expertise, lived experience and the best available evidence. You can do this by reversing the criminalisation of GnRH agonists, and working with the organisations that represent trans young people and the professionals with experience caring for them.

LabTestsOnline

LTO-UK 20th anniversary at LabMedUK24

We were at LabMedUK24 in Brighton in June celebrating the 20th anniversary of the site. The celebration was a main theme of the main social event for the conference. LabMed president, Kath Hayden, gave a potted history of LTO in her speech, as well as looking forward to where we see ourselves heading in the future. In attendance were also a lot of luminaries from LTO past and present. This reads like a Who's Who of clinical biochemistry, where such individuals as Stephen Halloran, Jonathan Kay and Mike Hallworth, who were instrumental in establishing LTO, as well as current board chair, Danielle Freedman, were all there to join in the festivities.

How to get involved

Join the editorial team – If you'd like to be part of our ongoing development, we're currently looking for volunteers to help with reviewing and editing our content as part of our peer review process.

Alternatively, if you would like to help promote LTO-UK at your hospital or even within your own GP surgery feel free to ask for our promotional card, which you can either print out or share digitally.

Contact us

Email: labtestsonlineuk@labmed.org.uk
Website: labtestsonline.org.uk

by
IAIN WOODROW
Deputy marketing lead, LTO-UK

About us

Lab Tests Online-UK is a non-commercial website written by practising laboratory medics and scientists with lay editorial review of content to ensure its suitability. The aim of the website is to help patients and the public, including healthcare professionals, understand the many clinical laboratory tests that are used in diagnosis, monitoring and treatment of disease.

Lab Tests Online-UK celebrated their 20th anniversary at LabMedUK24 and got their name up in lights!

14TH INTERNATIONAL CONGRESS OF AUTOIMMUNITY

SARAH LINSTEAD

Consultant clinical scientist in immunology, South West London Pathology, St George's Hospital, London

On 16 May 2024, I had the pleasure of visiting the charming city of Ljubljana, Slovenia for the 14th International Congress of Autoimmunity. This exciting conference, featuring over 2000 participants from over 60 countries, aimed to discuss the new insights into the pathogenesis of autoimmune disease as well as the laboratory and clinical aspects of diagnosis and treatment. Despite its large size, the conference was interactive and friendly with a handy app that kept you informed about sessions and speakers. What stood out to me was the calibre of the speakers and I didn't want to miss anything which meant I attended over 50 different sessions. Here are some highlights pertinent to the lab scientist.

Pathogenesis of autoimmune disease

Yehuda Shoenfeld, a leading figure in autoimmune disease and president of the organising committee, gave an enlightening talk on the interplay between genetic risk factors and environmental stimuli that can cause hyperstimulation of the immune system. The subsequent loss of immunological tolerance can lead to the development of autoimmune disease. It is well known that infection can contribute to the development of autoimmune disease in a susceptible individual but Yehuda focused on a condition called ASIA

(Autoimmune/ Inflammatory syndrome induced by adjuvants) a term he coined in 2011 for post-vaccine related inflammatory sequelae often involving the autonomic nervous system. There have been case reports of the condition appearing in patients post-COVID vaccine. Dr Shoenfeld was also the strictest session chair I have ever seen, occasionally wrapping up people's talks for them as they reached the end of their allotted time slot!

Most talks focussed on rheumatological conditions where autoantibodies are often a pathognomonic feature of the disease, but other organ specific diseases were also discussed. A particularly striking talk by Abdul Razzaque Ahmed showed hundreds of horrific clinical images of autoimmune skin diseases, many of which have autoantibody associations.

A talk on primary biliary cholangitis (PBC) by Ehud Zigmond helped us understand why patients with PBC have autoantibodies to pyruvate dehydrogenase found in the mitochondria of all cells yet the inflammation is limited to the biliary ducts leading to destruction of cholangiocytes within the liver. Experiments investigating apoptosis in a number of different types of epithelial cells (lung, skin, bile ducts) showed that the epitope for the autoantibody is preserved during apoptosis of the cholangiocytes but not during apoptosis of other types of epithelial cells. Persistent antigen presentation in an inflammatory environment can lead to development of autoimmune disease.

Testing for multiple antibodies

A major theme of the conference concerned the measurement of multiple autoantibodies or autoantibody profiles. Generally, in NHS laboratories, we aim to run a cost effective, clinically appropriate service by selecting tests that have high clinical sensitivity and specificity for the disease of interest. However, with the complexities of autoantibody generation and detection this concept is difficult to accomplish.

"Everything is autoimmune until proven otherwise"
Yehuda Shoenfeld

There is a correlation between the number of different autoantibodies a patient has and the risk of disease progression and/or severity. Luis Andrade spoke about how patients triple positive for antibodies to ZNT8, IA2 and GAD65 are at a higher risk of developing type I diabetes compared to patients with one or two of these autoantibodies. The same occurs in Antiphospholipid Syndrome where patients who are triple positive for cardiolipin and beta-2 glycoprotein-1 antibodies and lupus anticoagulant are at higher risk of developing thrombosis than patients

positive for one or two of these antibodies. It may be better to test for all the associated antibodies, then interpret the pattern of results.

Autoantibodies can be detected many years before symptoms arise. This may be giving an insight into the pre-clinical phase of disease development. Knowing which patients will progress to overt disease and potentially intervening to prevent disease is a growing area of research. Christoher Edwards spoke about the APIPPRA phase 2b clinical trial (Cope, *Lancet* 2024) where patients at high risk of developing Rheumatoid arthritis (joint pain but no erosions or swellings, dual positive for CCP antibodies and Rheumatoid factor) were given Abatacept (a drug that prevents co-stimulation of CD28 on T cells to down regulate their activity) or given placebo. Encouragingly, the treatment was effective at delaying the onset of RA but this delay was not maintained one year post-treatment.

Many of the companies in the exhibitors hall were showcasing their multiplex technology for autoantibody profile detection. This is not a new concept as Immunoblot and Luminex methods have been around for many years but the idea is gaining momentum. The newer technologies on display have coupled the antigen to paramagnetic beads and the associated chemiluminescence technology allows the antigen-antibody complexes to be detected in approximately 30 minutes which is much quicker than ELISA or other fluorescence enzyme immunoassays based on ELISA technology. I also spoke to a company making a microarray for measuring autoantibodies which uses a technology similar to that of ISAC or ALEX but multiple IgG autoantibodies can be detected on one small blood sample. However, as many speakers noted, these new technologies still require extensive validation to ensure their clinical performance matches their analytical capabilities.

Interpreting autoantibody results

The use of autoantibody results in classification criteria was a hot topic. Two areas to note are: 1) the new ACR/EULAR classification criteria for Antiphospholipid Syndrome (*Ann Rheum Dis* 2023); and 2) the ACR/EULAR classification criteria for Systemic Lupus Erythematosus (SLE) (*Ann Rheum Dis* 2019). Both of these classification criteria have presence of autoantibody as their entry criteria.

The new APS criteria favour ELISA-tested autoantibodies, despite the method's

declining use in diagnostic labs due to its limitations, such as long processing times and lack of random access. This decision was debated, with calls for incorporating newer testing technologies as more clinical data becomes available. It was stressed that classification criteria should not be used for diagnosis — they are used primarily for clinical trials to harmonise and reduce the heterogenicity in patient groups. However, we don't have diagnostic criteria for many autoimmune diseases so classification criteria are often used as a surrogate, however we must remember their limitations!

Similarly, discussions around SLE classification criteria highlighted the differences between traditional HEp2 immunofluorescence and solid-phase immunoassays (SPAs) for detection of antinuclear antibodies. While HEp2 immunofluorescence offers higher clinical sensitivity, SPAs provide better clinical specificity and can detect antibodies like Ro and Jo-1 more reliably. Nicola Bizzaro emphasised that a combination of both methods could offer the best diagnostic accuracy, although cost-effectiveness remains a concern (Bizzaro, *Ann Rheum Dis* 2023).

In a session titled 'Challenge the Professor', Xavier Bossuyt addressed questions on interpreting autoantibody test results. He emphasised the importance of considering antibody titres or concentrations, not just their presence. Higher antibody levels typically indicate a higher likelihood of disease. Dr Bossuyt advocated for using test result interval-specific likelihood ratios to provide a more objective measure of disease probability, though the integration of such data into clinical reports is still debated.

Summary

In summary, the congress was incredibly inspiring and motivating. A big thank you to South West London Pathology for supporting my attendance. I wonder if it's too early to book for the next one… the 15th International Congress of Autoimmunity will be in Prague in May 2026. It's an exciting time in the field of autoimmune disease diagnostics. The importance of having highly skilled laboratory scientists to interpret autoantibody results and to understand the limitations both analytically and clinically is paramount.

Continuing education

E-learning portal: https://unlok-education.com/autoimmunity

Yehuda Shoenfeld's International Friday Meetings

ANApatterns.org

17th Dresden Symposium on autoantibodies in September 2025

WHAT IS BIVDA?

PAUL FISHER
Head of policy, programmes and compliance, BIVDA

BIVDA is the British In Vitro Diagnostics Association – the trade association for the medical diagnostics industry. Having celebrated our 30th anniversary in 2022, who are we and what do we bring to the table?

Early diagnosis and the prevention of ill health are central pillars of future health policy. With a new government describing the NHS as "broken", the role of the medical diagnostics sector is more important than ever. BIVDA represent, advocate for, and support this industry. Whether advising government policy or supporting members with expert guidance, we are a vital part of the diagnostics ecosystem.

Our aspirations need an outstanding team to accomplish them and BIVDA has significantly strengthened in the past year. Under the leadership of our new chief executive, Helen Dent, BIVDA has secured Angela Douglas as our president. Angela is the former deputy chief scientific officer for NHSE and one of the UK's foremost experts on genomics. I lead our policy and programmes work. A former senior civil servant at DHSC and UKHSA, I was privileged to lead major diagnostics programmes during the pandemic before joining BIVDA. Our regulatory team is led by world-leading expert Mike Messenger as head of regulatory strategy. Mike and I authored our new AMR strategy and regulatory strategy respectively, which are set to be released imminently. Finally, to support members navigating the UK and international markets, Beth Loudon, currently of NHS Supply Chain, will join in September and bring her expertise to the role of head of market access.

BIVDA's 2024-2027 strategy sets out our four areas of principal focus over the next three years. We look to inspire,

BIVDA's Professor Mike Messenger in conversation with members

BIVDA's chief executive Helen Dent launching the 2024-2027 strategy

innovate, invest and inform those involved in or affected by medical diagnostics. Our key workstreams are: antimicrobial resistance and infectious disease; pathway innovation; genomics (including cancer, and both rare and common diseases); and near-patient testing.

The UK and international health systems are a blend of threat and opportunity. The NHS is in a dire condition. The UK economy has been challenging for several years. There are large numbers of economically inactive people and a chronically ageing population. Political instability and black swan events like COVID, Brexit and the war in Ukraine have lasting effects. However, with a new government, early signs of economic recovery and a clear mandate for NHS transformation, diagnostics are well placed to offer solutions.

From the quick hits – near patient testing, Pharmacy First and antimicrobial stewardship – to game-changers such as the early diagnosis of dementia or pharmacogenomics driving pathway change, diagnostics must be a key spoke of NHS recovery. The new government have been clear that health alone is not enough – the UK must focus on health economics. And with a thriving life sciences sector in the UK, this offers real hope for the future.

Representing 95% of the medical diagnostics industry and as a key conduit between members, government and other decision-makers, we are in a unique position to support transformation. Each day we witness the incredible impact of our members' innovations, which could be benefitting the NHS. It is therefore our job to demonstrate the value of medical diagnostics across a range of settings and uses by patients and clinicians alike as more possibilities facilitated by our members' tests emerge.

Sometimes this will necessitate a different approach, including identifying and collaborating with non-traditional partners and adopting bolder methods. But we are committed to exploring every opportunity to enable better outcomes for UK patients.

Interested in what we look to deliver? Get in touch with our team, and we'd be delighted to have you join us on this journey.

WALES SPRING MEETING

KATIE BARNETT
Trainee clinical scientist (biochemistry), Department of biochemistry and immunology , Cardiff & Vale NHS Trust

On 1 May 2024, delegates met at The Grange Hospital for the LabMed Wales Spring Meeting. The meeting was chaired by Nadia El-Farhan and held in honour of the career of Ian McDowell who is well known within the lipid field for his work in establishing the familial hypercholesterolaemia (FH) service in Wales, among many other achievements.

The first speaker of the day was David Preiss who introduced the CTT collaboration which assessed statin therapy using meta-analyses of data from large scale, long-term, randomised controlled trials. He shared examples of previous statin trials and their limitations and provided insight into improving trial designs. Professor Preiss concluded his talk by summarising ongoing trials including ORION-4, Ascend plus and Lens trials and bringing to the audience's attention the potential for NHS data in such trials.

Next, the focus of the meeting turned to the FH service in Wales, starting with Dev Datta who presented an overview of the service and highlighted why it is so important, given that under 20% of individuals with FH are currently diagnosed and untreated FH can result in premature coronary heart disease. He discussed current FH diagnostics, including Lp(a) and genetic testing and the treatment options including statins, lipid apheresis, plus the future possibility of gene editing.

Peter Dale followed this by summarising the provision of FH services for paediatric patients, emphasising the importance of an early diagnosis for improved patient outcomes and the negative impact of cumulative years of high cholesterol. He discussed how cascade testing from adults with known FH is an important part of finding affected children and allowing preventive measures to be put in place as soon as possible.

Following lunch, Kate Haralambos discussed the evolution of diagnostics in FH. She described the use of whole gene sequencing of LDLR, APOB, PCSK9 and LDLRAP1 genes, the impact of mutations in these, as well as the recent addition of next generation

Stuart Moat presenting Ian McDowell with a gift in recognition of his significant contribution to lipid medicine

sequencing approaches. Dr Haralambos outlined the scoring system used to screen for genetic testing and described how segregation of a variant of unknown significance with high cholesterol within a family is used to classify variants.

Stuart Moat concluded the lipid theme by discussing homocysteine and cardiovascular disease. Professor Moat and Dr McDowell have co-authored an impressive number of publications, their research focusing on unravelling homocysteine's association with cardiovascular disease. They concluded that homocysteine is not a marker for CVD. However, Professor Moat highlighted homocysteine's importance in other investigations including homocystinuria, nitrous oxide (NOS) abuse and porphyria.

The last speaker of the day was Kate Nambiar who discussed adapting the clinical lab service to the needs of transgender patients, emphasising that 0.5% of the UK population is transgender, making it a large minority. Dr Nambiar summarised the types of laboratory investigations that duty biochemists might see for those under the care of the Welsh Gender Service, highlighting how investigations such as creatinine, lipid and haematological parameters may be impacted by gender affirming hormone therapy.

Dr El-Farhan closed the meeting with the presentation of a gift to Dr McDowell which expressed thanks by those that have had the privilege of working with him throughout his career. Thanks are due to all the speakers for their fascinating talks, as well as our colleagues at the Grange Hospital for hosting the meeting; it was a pleasure to attend.

Attendees at the meeting

IFCC WORLDLAB CONGRESS DUBAI

by
CHARLOTTE EVANS
Trainee clinical scientist,
Department of Clinical Biochemistry
Black Country Pathology Services
Supporting: Dudley Group NHS Foundation Trust

From 26-30 May 2024, I had the amazing opportunity of attending the 2024 IFCC WorldLab Congress in Dubai, receiving funding from the IFCC and the Robert Gaddie fund. This was a great opportunity to hear about recent developments in laboratory medicine on a global scale, while also seeing the challenges faced in different parts of the world.

IFCC Forum for Young Scientists

Attended by scientists under the age of 40, this event was aimed at encouraging young scientists to get involved in shaping the future of laboratory medicine. There were interesting sessions on point-of-care testing, artificial intelligence, management and leadership. There was also a Young Scientists Poster Tour allowing us to present and discuss our posters with others.

IFCC WorldLab Congress

A wide range of interesting sessions were held by scientists and clinicians from all over the world. Some of the stand-out sessions are described below.

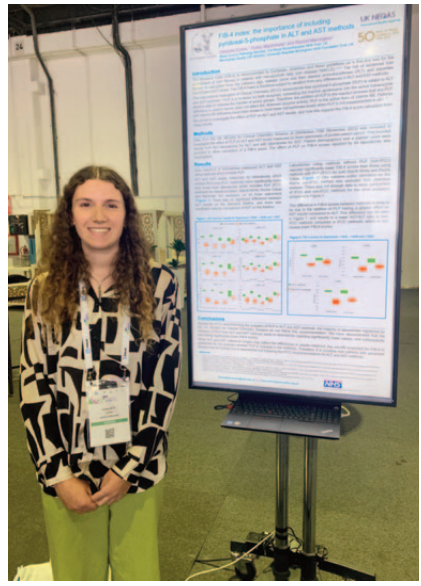
Present and future of CKD and acute kidney injury detection

Chaired by Joe El-Khoury and Rajeevan Selvaratnam, this session discussed alternative new definitions for acute kidney injury (AKI). These included the AACC 20/20 criteria (20 µmol/L change for creatinine <90 µmol/L or 20% change for creatinine >90 µmol/L) which can reduce false positives compared to 2012 KDIGO criteria, and the ADQI extended criteria which includes structural biomarkers (NGAL/NephroCheck/NephroClear) to improve AKI assessment. Standardisation of urinary albumin assays and the use of machine learning in assessing kidney function were also discussed.

The role of laboratory medicine in direct-to-consumer testing

This session was chaired by Sverre Sandberg and Matthias Orth. The impact of direct-to-consumer testing (DTCT), why it is becoming increasingly

Charlotte with her poster



common and how the laboratory can address the problem were discussed. Evidence was provided to show how inappropriate testing and low pre-test probabilities associated with DTCT can harm patients while also increasing costs to healthcare providers. Through discussions it was agreed that laboratories should give advice to the public about which DTCTs may be useful, when they should be performed and how to interpret the results.

Dysglycaemia – novel biomarkers for diagnosis and monitoring prognosis

This session was chaired by Suhad Bahijri and Manel Chaabane and began with an interesting overview of diabetes in the Arabian Gulf, where the prevalence is especially high, and the challenges this causes. As well as discussing currently available biomarkers for assessing glycaemic control, novel biomarkers such as the one-hour glucose tolerance test (GTT), glycated albumin and 15-anhydroglucitol were discussed. The one hour GTT has recently been recommended by the International Diabetes Federation for the diagnosis of intermediate hyperglycaemia and type 2 diabetes, and the evidence behind this was demonstrated.

Final remarks

The IFCC WorldLab Congress 2024 was an incredible experience in which there were many thought-provoking talks and posters from all around the world. Many of these gave a perspective of the challenges faced locally as well as internationally, which really gave an insight into the differences in laboratory medicine across the world.

The IFCC Young Scientist Scholarship winners

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 43

Which of the following statements are true or false regarding viral infection of the central nervous system (CNS):

A) Meningitis cannot occur together with encephalitis
B) Enteroviruses are one of the commonest causes of CNS infections in childhood
C) PCR/NAT has no role in the diagnosis of CNS infections
D) Sequencing of the cerebrospinal fluid (CSF) can be a useful diagnostic test
E) The detection of antibody in the CSF is a poor diagnostic marker

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

Question 42 from the June issue

Humans are the only reservoir of infection of the following:

A) Botulism *(Clostridium botulinum)*
B) Staphylococcal food poisoning *(Staphylococcus aureus)*
C) Bacillary dysentery *(Shigella dysenteriae)*
D) Salmonella gastroenteritis *(Salmonella enterica)*
E) Clostridial food poisoning *(Clostridium perfringens)*

Answers

The following is true:

C) Humans are considered the *only* natural reservoir for *Shigella dysenteriae* with the habitat within the intestine.

The following are all false:

A) *Clostridium botulinum* spores can be found in the intestinal tract of birds, animals and fish. They can also be found in soil, aquatic sediments and can be in agricultural products such as vegetables; there are no epidemiological relationships between human and animal botulism.
B) Although humans are considered the main reservoir, there are other animals that harbor *Staphylococcus aureus* as a reservoir.
D) *Salmonella enterica* can be found mainly in both the intestinal tract of humans and farm animals, as well as within a wider range of other animals such as reptiles and wild birds.
E) *Clostridium perfringens* can be found in a wide range of environments such as soil, water, air and in the faeces of both healthy and infected individuals and animals.

DEACON'S CHALLENGE REVISITED

NO 32. ANSWER

Routine use of the Cockroft-Gault equation has now been replaced by eGFR estimates normalised to a body surface area of 1.73 m^2. However, sometimes it is still used to calculate creatinine clearance for some renal dose adjustments. In 1976 Cockroft and Gault studied the relationship between creatinine excretion, age and body weight. They plotted the 24 h urinary creatinine excretion (mmol/24 h) divided by body weight (in kg) on the y axis against age on the x axis. The intercept on the y axis (i.e. y value when x = 0) was 0.248, whereas the slope was -0.0018. Derive an equation which can be used to calculate creatinine clearance (in mL/min) from plasma creatinine (µmol/L), body weight (in kg) and age (in years).

The general expression for creatinine clearance is:

$$\text{Creatinine clearance} = \frac{U \times V}{P}$$

Where U and V are the creatinine concentrations in urine and plasma respectively in the SAME units and V is the urine flow rate in mL/min (assuming that the clearance is to be expressed as mL/min).

The data of Cockroft and Gault relates urine creatinine excretion to body weight and age so as to avoid the inconvenience (and inaccuracy) of a timed urine collection. The slope and intercept can be used to write a simple linear equation:

Rate of urinary creatinine excretion (mmol/kg/24 h) = 0.248 - (0.0018 x age)

If both sides are multiplied by the body weight (in kg), then the body weight is transferred to the right hand side of the equation:

$$\text{Urine creat (mmol/24 h)} = \text{Body Wt (kg)} [0.248 - (0.0018 \times \text{age})]$$

To make the expression easier to manage, 0.0018 is moved outside the brackets; 0.248 then becomes 0.248/0.0018 = 138, and 0.0018 becomes 0.0018/0.0018 = 1:

$$\text{Urine creat (mmol/24 h)} = \text{Body Wt} \times 0.0018 (138 - \text{age})$$

Since plasma creatinine (P) is to be expressed as µmol/L then this expression is multiplied by 1000 so that both U and P will be in the same units, and since the clearance is to be expressed per min, the expression is also divided by 24 (to convert to hours) then 60 (to convert to minutes):

$$\text{Urine creat (µmol/min)} = \frac{0.0018 \times \text{Body Wt} (138 - \text{age}) \times 1000}{24 \times 60}$$

$$\text{Urine creat (µmol/min)} = 0.00125 \times \text{Body Wt} \times (138 - \text{age})$$

Division by the plasma concentration (P) then gives the creatinine clearance:

$$\textbf{Creatinine clearance (L/min)} = \frac{0.00125 \times \text{Body Wt} \times (138 - \text{age})}{P}$$

Note that since the plasma concentration is in µmol/L, the clearance is in L/min. Multiplication by 1000 converts it to mL/min:

$$\text{Creatinine clearance} = \frac{1.25 \times \text{Body Wt} \times (138 - \text{age})}{P}$$

In most textbooks 1.25 is truncated to 1.2 and 138 is rounded to 140:

$$\textbf{GFR (mL/min)} = \frac{(140 - \text{age in yrs}) \times \text{Body Wt (kg)} \times 1.2}{\text{Plasma creatinine (µmol/L)}}$$

The above data was validated for men, it is common practice to multiply this value by 0.85 for women in order to correct for a lower muscle mass.

It is a common misconception that, since body weight is used in the formula, the clearance is corrected for surface area. This is not the case, body weight (and age) is only used to predict urine creatinine output – a fact that is not obvious when looking at the formula. If a corrected clearance is required then this value must be divided by the body surface area (obtained from height and weight) then multiplied by the average surface area in the usual manner.

Question 33

Reproduced below are peak area data from an HPLC analytical run set up to measure plasma phenylalanine. The assay is used to monitor adequacy of dietary control in patients with phenylketonuria. Good control being regarded as maintaining plasma phenylalanine between 120 and 360 µmol/L.

N-methyl L-phenylalanine has been used as the internal standard. 200 µL of internal standard has been added to 200 µL aliquots of samples and standards prior to analysis.

Standard concentration = 500 µmol/L

N-methyl L-phenylalanine (NMP) concentration = 100 µmol/L

QC target: 180-210 µmol/L

Sample	Peak area	
	NMP	Phenylalanine
Standard	20,000	81,000
QC	22,000	35,000
Patient	21,000	140,000

a) Is the assay in control?

b) What was the patient's phenylalanine concentration?

c) What comment would you make about the patient's control from this result?

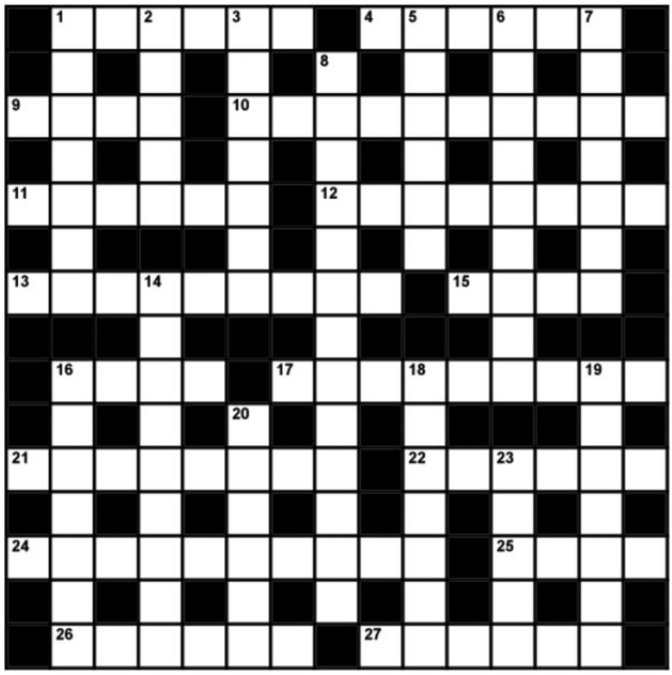
THE CROSSWORD BY RUGOSA

Across

1 Vagabonds admonished about hideaway (6)
4 Support data store (4-2)
9 Streaker's colour? (4)
10 Confused slow starter sticks at it, loses potassium data (10)
11 Poisonous gas is near production (6)
12 A polygon instrument (8)
13 Kind of organ to detect 6 and 11 (9)
15 Dry? Mix some cordial! (4)
16 Haemoglobin effect reportedly named after windbag (4)
17 Initial artificial feeding codicil about vitamin (5,4)
21 Breaking code that results in fatality (3,5)
22 Lobster stew, but no bottle opener for alcohol (6)
24 For this poison screen go for plasma composition without fail (7,3)
25 Kind of club forming part of the social environment (4)
26 Rudest about 25's appearance after exposure (6)
27 Short commercial at this point for cement (6)

Down

1 Youth centre rental free, no charge (7)
2 Plain clothes – sort of uniformity without irony (5)
3 Cut up, bad-mouth splinter group (7)
5 Sharp leading investment cashier completes account identification (6)
6 Urinate OK, manage to get fast result (9)
7 Dry? On the contrary! (7)
8 A herbage topic about possible treatment for infection (13)
14 Dry? Order our shandy! (9)
16 One who peruses internet link (7)
18 Fashionable Italian expressed agreement: individual identification is boring (7)
19 Complex operations ran out of potentially diagnostic type of chemical (7)
20 Injury: direction following to make financial restitution (6)
23 Oust former partner over convoluted lie (5)



SOLUTION FOR JUNE'S CROSSWORD

SUDOKU ... THIS MONTH'S PUZZLE

C				T				I
	H				E	M		
		E					H	
			M				S	
R	M			I			Y	C
	E				S			
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SOLUTION FOR JUNE

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

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