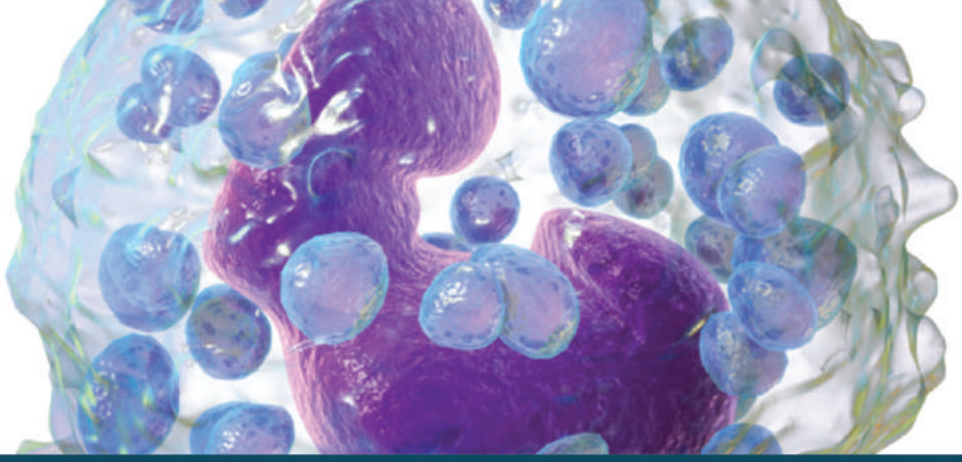
ACB News

The Association for Clinical Biochemistry & Laboratory Medicine | Issue 680 | December 2022

Delegates enjoy the first face-to-face UKMedLab meeting since lockdown

In this issue



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ACB News

The bi-monthly magazine for clinical science

Issue 680 • December 2022

The Association for Clinical Biochemistry & Laboratory Medicine

Better Science, Better Testing, Better Care

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Front cover photo by Alastair Fyfe, official photographer for UKMedLab22

Message from the President

Winter is definitely here, as evidenced by the first sign of snow in Aberdeen last week, and with it comes increasing pressure on NHS and Social Care services. While we are all working harder, we also need to work smarter and ensure lab tests are used appropriately to optimise patient pathways and outcomes. Real opportunities exist, despite the doom and gloom, for Laboratory Medicine to demonstrate its importance to healthcare.

It was great to meet many of you at UKMedLab22 and our Training Day last month – our first face-to-face national meeting since 2019. The quality of the science and the enthusiasm exhibited by both speakers and delegates was at a very high level. UKMedLab23 will soon be upon us in just over 6 months' time and we plan just as rich a programme for delegates visiting Leeds in June next year.

RCPath examination results for the Autumn sitting were recently released. Many congratulations to those that passed and commiserations to those that were not quite ready to – it's a difficult, expensive process, but keep going. Taking on the role of FRCPath Clinical Biochemistry Panel Chair during the summer has allowed me to work with a new team to take a fresh look at the exams, aiming for content that is more aligned to both the curricula and real-life practice. In addition, removing irrelevant questions/subjects and minimising ambiguity has allowed an exam that is fairer and more predictable to emerge – but there is still work to be done to refine this further. It was however satisfying to see significantly higher pass rates this time round. This does not mean the exams are any easier – hopefully more appropriate with the high pass rates linked to the overall high competency of our Trainees

when presented with a relevant, fair and clear exam. A full report is coming soon.

Volunteering for professional associations remains vitally important, and, of course, many of you do so, despite the challenges of your day job. Online meetings have made it easier to participate without travelling long distances and more flexible work patterns have helped as well. Our knowledge and experience are extremely valuable to consultations, guideline development, examinations and in developing educational content for trainees and other healthcare professionals. I urge you all to consider directly contributing in whatever capacity you can manage and we at the ACB can assist in making the professional argument for this participation.

Finally, all the best to you and your families over the upcoming holiday season and I hope you all get some well-deserved rest and time to recharge before facing the difficult challenges in the months ahead. ■

Bernie Croal, ACB President

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CEO Update

It's been a busy couple of months since the last edition of *ACB News*. Activity peaked on the delivery of UKMedLab22 which has been a year in the planning, led by Sarah Robinson and a dedicated group of ACB Members, supported by the ACB staff team. Despite news of impending transport strikes two weeks out from the conference, the team managed to keep everything on track (with some last minute changes) and managed to deliver a highly successful meeting. Feedback is still coming in and we will share in a future issue but so far it seems that Members were delighted to be back together or, in some cases, meet for the first time and that there remains a need for opportunities to network face-to-face. Well done to everyone involved for keeping your cool and soldiering on!

Other highlights for me include attending the IFCC Congress in Brussels and meeting our international counterparts for the first time. The IFCC is an amazing source of information, learning and networks which we will be profiling more widely with Members next year so you can take advantage of the resources available exclusively to ACB Members as the national representative body for the UK within IFCC.

In other news, the HEE-National School of Healthcare funded Whole Genome Sequencing Course is open for bookings and further details of how you can avail yourself of this free course are included on page 16.

As the year comes to a close I'd like to thank our industry partners and collaborators who have supported us during the year and helped us to fund a growing programme of activity and change management within the ACB. This includes our strategic partner, Abbott; and UKMedLab22 sponsors BD, Alpha Laboratories, Beckman Coulter, The Binding Site, BIOHIT Healthcare, Labgnostic, Mast Group, Sebia and Siemens. Our **Corporate Members** have increased in number by 20% in the last half of the year. We look forward to working with you all in 2023.

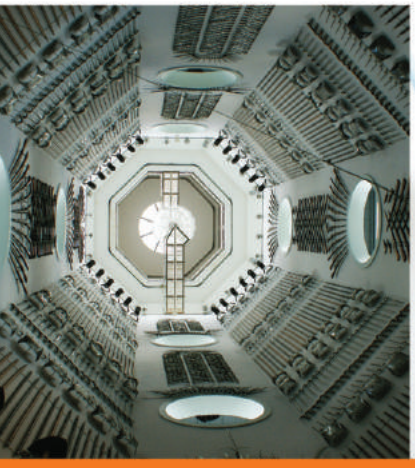
In September the Executive Committee met to agree our priorities for the next few years and amongst other issues, there is a unanimous desire for a greater engagement with the Members so you'll be seeing more of us in 2023 and hearing more about how you can contribute to your profession.

All that remains is for me to wish you a very happy holiday season and a healthy New Year and thank you for all your hard work and dedication to scientific excellence for better patient outcomes. You are an inspiration.

See you next year! ■

UKMedLab23

Leeds • 12-14 June



Save the date!

The Association for Clinical Biochemistry & Laboratory Medicine

Happy Holidays

from the *ACB News* Team

Thank you to everyone who has helped on *ACB News* – Nikki Williams (for the design and layout of each edition), the Associate Editors, Sue Ojakowa of PRC Associates (our publisher), Jane Pritchard and the ACB staff team.

They all do a fantastic job of ensuring that we produce *ACB News* on time every two months. Thank you also to everyone that has taken the time to send in articles, without you there would be no *ACB News*.

Here's to a healthy and happy New Year!

Gina Frederick

RCPath Freddie Flynn Symposium

Wednesday 1st March 2023

Royal College of Pathologists, 6 Alie Street, London E1 8QT

The Freddie Flynn Symposium aims to celebrate the work of Professor Freddie Flynn, who was responsible for many major developments in UK pathology in the latter half of the 20th century. Freddie's name was mainly associated with developments in clinical computing, but his work also spanned renal disease and early laboratory computing.
He held positions including Director of CPD, Vice-President and Treasurer at the Royal College of Pathologists, as well as the President of the Association of Clinical Pathologists.

See the agenda and book a ticket to the Freddie Flynn Symposium on our website. ■

Sudoku

This month's puzzle

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Solution for October

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

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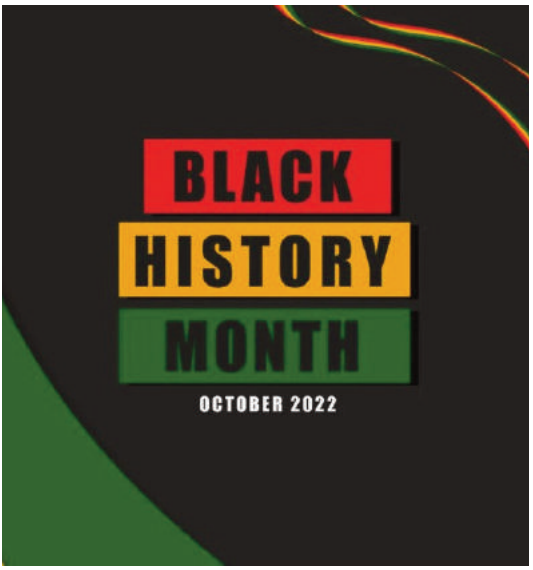
In ACB Members' words: Black History Month 2022

Sharing Journeys

In October, the UK marked Black History Month, with the theme for 2022 being *Sharing Journeys.* This year's theme aimed to explore and share the stories of those who came to Britain in the 19th and 20th centuries, as well as the experience of second and third-generation Black British individuals. It commemorates the legacy created for today's vibrant and diverse Black British community.

The ACB is proud of its diversity and commitment to inclusion for all and sees this year's theme as an opportunity to celebrate the achievements of its Black members. It is a chance to recognise their journeys into the profession and the significant contributions they have made to Laboratory Medicine in the UK.

The ACB Equality, Diversity and Inclusion (EDI) Working Group invited members to submit their reflections on *Sharing Journeys.*



Ijeoma Okoliegbe, STP Clinical Microbiology Trainee, NHS Grampian

Black History Month is a time to reflect on the struggles of the past generations for freedom and equality. It is also a chance for deeper reflections and immense gratitude for the lessons learnt from these struggles which have availed me with the opportunities I now enjoy as an academic and a healthcare scientist.

As an early career researcher and scientist who moved to the UK in 2015, it constantly reminds me that anything is possible and there is a fighting chance irrespective of race or hardship. As a society, celebrating the achievements of the black community promotes knowledge and understanding of the rich heritage of different cultures while seeking an inclusive future for everyone.

Dr John Bolodeoku, Life Science Consultant, Chemical Pathologist & Pharmaceutical Physician JB Consulting MDP Ltd; Honorary NHS Consultant Physician (Lipids), Hampshire Hospitals NHS Foundation Trust; Visiting Senior Lecturer, Faculty of Life Sciences & Medicine, King's College, London

Black History Month is the month that the UK has designated to officially recognise and celebrate the contributions and achievements of its non-white population. My love for Laboratory Medicine started when doing my homework in my father's office, which was in the Department of Chemical Pathology, University College Hospital, Ibadan, Nigeria. He went on to teach me Chemical Pathology in my undergraduate training. On return to the UK, I received my specialist training in Chemical Pathology in the St Helier, St George's, John Radcliffe and the Royal Free Hospitals, working with a set of lovely

teachers and colleagues. There were instances during my career where job opportunities were challenging to come by and awful and disparaging comments were made. But I was also encouraged and supported by reasonable women and men in the profession.

My first Chemical Pathology project was to do with sequential monitoring of CK-MB and CRP in acute myocardial infarction, with supervisors Dr J Barron and H Wilcox of St Helier Hospital, Carshalton.

This project led to my first set of Chemical Pathology publications: 'Acute phase proteins' in *Hospital Update* 1991; 'Value of emergency cardiac enzyme service: audit in a coronary care unit' in *Journal of the Royal Society of Medicine* 1991; 'The use of C-reactive protein in the evaluation of chest pain of cardiac origin' in *Annals of Clinical Biochemistry* 1992 and 'Comparison of creatine kinase MB measurement using Amerlite and IMx methods' in *Clinical Chemistry News* 1992.

Currently, I support Chemical Pathology services in private laboratories, lipid clinics in the NHS and the Life Science Sector (Pharmaceutical, Diagnostic and Devices) and love point-of-care testing devices.

Banke Ajayi-Obe, Trainee Clinical Scientist in Clinical Biochemistry, Student Representative for MSc Clinical Science, University of Manchester

I am a Trainee Clinical Scientist in Clinical Biochemistry, with an interest in integrative technologies, particularly how these technologies (e.g. imaging technologies) can be used to improve the methods used to currently detect diseases. As well as my Clinical Scientist role, I am a Student Representative for MSc Clinical Science at the University of Manchester. In 2021, data on who was involved in science was released by the Royal Society, using figures from the Higher Education Statistics Agency, which, according to ***The Guardian***, produces the most systematic data. In chemistry, the proportion of black researchers was equivalent to zero. In addition, according to an Equality, Diversity and Inclusion survey published by the Association for Clinical Biochemistry and Laboratory Medicine (ACB), only 6% of HCPC registered members who responded to the survey stated ethnicities other than Caucasian. It must be noted that this percentage included a broad spread of ethnicities included within the BAME (Black, Asian and Minority Ethnic) category. History is filled with the untold stories of black scientists, in essence 'hidden figures'. By embarking on a career in science and healthcare, I would like to contribute to improving the visibility of black scientists and the number of black individuals who pursue a career in science.

- You can also read ACB Member Divine Azange's Black History Month essay 'Diversity Built Britain' **on our website**.
- For further information and resources about Black History Month, please visit **International Black History Month in the UK (IBHM-UK)** and **Black History Month.** ■

ACB new membership offer

Mike Lester, Membership Manager

We're really excited for the changes to come in January 2023.

Members will have received lots of information by now about the changes and the new and reinvigorated benefits coming in next year.

The groundwork has been ongoing since the AGM in July and we will soon be ready for launch of the new membership structure.

Members will receive further email notices this month including one outlining the amount you will be due to pay towards your subscription on your next renewal.

As a reminder, all current Ordinary and Overseas Ordinary Members in their first five years of membership, Members of the Association of Clinical Biochemists in Ireland (ACBI), and Members currently within Ordinary subscription band 1 will be entitled to the discounted subscription fee of £150 per annum (£75 per transaction if paying bi-annually or £12.50 per month by Direct Debit).

All other current Ordinary and Overseas Ordinary Members will be allocated the full subscription rate of £240 per annum (£120 per transaction if paying bi-annually or £20 per month by Direct Debit).

We are asking all Members who pay for their subscription via Direct Debit to select their preferred payment frequency (annually, bi-annually or monthly) **via this online form** by 9th December 2022 to ensure this is set correctly for your next renewal.

Please note, irrespective of payment frequency, membership of the ACB is still an annual subscription. However, we hope that introducing the option to pay via monthly Direct Debit transactions helps members during these difficult times.

Thank you to those who joined the recent Member drop-in sessions. If you were unable to attend any of these, but have any questions at all, please do not hesitate to contact me at **mike@acb.org.uk** or +44(0)20 4542 6044 and I will be very happy to chat.

Category	Full subscription fee	Discounted subscription fee*
Student	Free	-
Member	£240	£150
Retired	Free	-

Nominations for the Foundation Award

The Foundation Award is an award presented to a Member of the Association, normally resident in the UK and Republic of Ireland, who is acknowledged as having made an outstanding contribution to the profession. Nominees for this award can be proposed by all members of the Association.

We encourage you all to champion those around you and submit nominations for this prestigious award. The nomination process will be open soon and we will provide further instructions by email and on our website.

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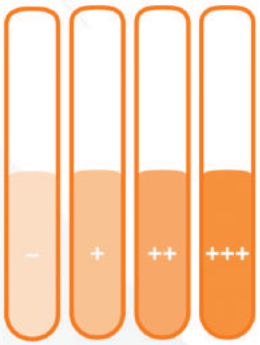

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I remember when . . .

by William Marshall

The standard panel of so-called 'liver function tests' has changed little in my lifetime except for the addition of γ-glutamyl transpeptidase (GGT). None is a reliable test of function: the aminotransferases are non-specific indicators of hepatic damage; alkaline phosphatase increases in response to biliary obstruction (both intra- and extra-hepatic) and of course is also produced by osteoblasts; bilirubin concentration can reflect function but again is non-specific as well as being insensitive, and GGT activity in plasma, while having its origin in bile ducts, can be increased in many different liver diseases. Many attempts have been made to develop quantitative tests of true function, analogous to the measurement of clearance by the kidneys, but none is suitable for routine use. The only widely available true test of function is the prothrombin time, and even that is affected by non-hepatic factors, in this case, vitamin K status.

Plasma albumin is synthesised exclusively in the liver and is typically included in panels of liver function tests, but is affected by many non-hepatic conditions, particularly acute inflammation. Patients with some forms of liver disease have increased immunoglobulin (Ig) concentrations and in times past considerable efforts were extended to measuring Ig concentrations in serum as an indicator of hepatic disease.

The most widely used tests were introduced by Noel Maclagan (Westminster Hospital Medical School, the first Medical Professor of Chemical Pathology in the UK) although for reasons that I have been unable to ascertain are mainly associated with the name of H. G. Kunkel (an Immunologist at the Rockefeller Institute Hospital, USA). They were based on measurement of the turbidity of serum following treatment with one of a variety of flocculents, e.g. zinc, thymol, methanol and cephalin (a naturally occurring phospholipid). Although only semi-quantitative, these tests were found to be robust as well as being simple to perform, and were unaffected by the concentration of albumin. Maclagan's first paper on the topic was published in *Nature* (194:670-671). It arose from his chance observation that thymol (used to inhibit the growth of moulds in a barbitone buffer used in an earlier test, the serum colloidal gold reaction) produced a marked turbidity or precipitate with sera from some patients with parenchymatous liver disease that also gave positive colloidal gold reactions.

The colloidal gold reaction test was developed on the basis of the observation by the Hungarian Chemist Richard Zsigmondy (winner of the 1925 Nobel Prize for Chemistry) in the early 1900s that certain proteins caused the precipitation of colloidal gold suspensions; this was particularly seen with globulins: albumin tended to protect against precipitation. Another pioneer in this field was Carl Lange (New York State Department: Department of Health), who studied the effects of cerebrospinal fluid on colloidal gold in patients with various neurological diseases.

In the Lange test, serial dilutions of CSF

were set up to which a colloidal gold solution was added and any change observed after 24 hours. No change (the tube contents remained a bright cherry-red) was normal; a heavy precipitate at low dilutions with quenching of colour indicated 'paresis' (multiple sclerosis or tertiary syphilis); blue-purple colouration at lower dilutions, acute syphilis, and similar colouration at higher dilutions, acute meningitis. In principle, the test itself was straightforward: the skill lay in preparing the colloidal gold solution and in the interpretation of the patterns of reaction seen. The colours were pretty, but the value of the test in possible acute meningitis was clearly very limited given the time taken for them to develop.

But a new role has been found for colloidal gold technology in recent years, it being an essential part of the SARS-CoV-2 antigen rapid test kit. And colloidal gold is thought by some to be a natural rejuvenator of cells and to improve transmission between nerve cells in the brain and is available in numerous formulations over the counter – though I never heard of any colleagues having a sip when preparing the Lange reagent. ■

EFLM Academy

Starting in January 2023, ACB Members (excluding Student, Federation and the Retired Member categories) will automatically enrol with the EFLM Academy, free of charge, as part of their membership. The EFLM Academy is an online education and communication platform for Laboratory Medicine professionals, comprising webinars, syllabus courses and access to scientific journals, among others. EFLM Academy members are also eligible for applying to various EFLM grants and awards – such as the EFLM Research Grant and the EFLM Academy Award.

The EFLM will be sent qualifying members' names and email addresses on 9th December 2022 and will contact members directly with instructions on accessing the EFLM Academy. Read more about the **EFLM Academy here**. ■

EFLM Scientific Research Grant 2023

All ACB Members will be eligible to apply for an EFLM Scientific Research Grant, as they will qualify as EFLM Academy members, starting 1st January 2023. The EFLM Scientific Research Grant has been established to promote science and facilitate research in Laboratory Medicine in Europe. Two grants of up to €10,000 each are awarded each year.

Applicants must submit a detailed budget of their study, with a list of all required reagents or consumables. Eligible applications will be judged by a Research Grant Evaluation Committee, composed of the Chair of the EFLM Committee for Science, the Chair of the EFLM Committee for Education and Training and one EFLM Executive Board Member selected by the EFLM President.

Selected applicants are to publish the findings of their study in an international journal (preferred) or a national peer-reviewed one, within two years of receiving the grant. The application deadline is 15th January 2023. More information can be found **on the EFLM website.** ■

Dates for Whole Genome Sequencing Course 2023

We're pleased to announce the 2023 dates for the Whole Genome Sequencing Course for Health Education England which the ACB is running in partnership with Great Ormond Street Hospital (GOSH).

The course is designed as professional development for staff working in a healthcare setting with clinical exposure to microbiological sequencing data and test results. It is designed to ensure understanding of molecular microbiology results and to support their implementation into clinical workflows.

Learning will be delivered in three complementary ways, across a total of 200 hours.

1. **Contact time** (i.e. timetabled hours during which the learning activity is undertaken under the direct supervision of a lecturer, either in a virtual or in-person setting depending on course dates outlined below) – 30 hours.
2. **Blended learning** (i.e. content that informs or consolidates the course content) – 20 hours.
3. **Self-directed learning** (i.e. related learning activities without direct supervision) – 150 hours.

A virtual learning environment (VLE) will form the main platform for delivery. Teaching methods to be used within the module include: lectures, case studies, reflective practice, group work including student-led presentations, webinars, tutorials and workshops.

Whole Genome Sequencing cohorts 2023 (contact hours learning)

- **17-21 April 2023** – in person at Goodenough College, London – 50 delegates
- **26-30 June 2023** – virtual setting – 100 delegates
- **11-15 September 2023** – virtual setting – 100 delegates
- **20-24 November 2023** – in person at Goodenough College, London – 50 delegates

Register your interest **using this form on the ACB website.**

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ACB Members on the Pathologist Power List 2022

We're thrilled to congratulate ACB Members David Gaze, Elaine Cloutman-Green and Katy Heaney for featuring on this year's Pathologist Power List. The Pathologist Power List is an annual celebration of the most influential professionals at the forefront of Pathology and Laboratory Medicine.

- **Elaine Cloutman-Green** is a Consultant Clinical Scientist (Infection Control Doctor) and Joint Trust Lead Healthcare Scientist at Great Ormond Street Hospital and runs the blog *girlymicrobiologist*
- **David Gaze** is Senior Lecturer in Chemical Pathology and Director of Employability, School of Life Sciences, University of Westminster, London, and Co-Editor-in-Chief of *Practical Laboratory Medicine.*
- **Katy Heaney** is a Consultant Clinical Scientist and POCT Speciality Network Lead at Frimley Health NHS Foundation Trust, on behalf of the Berkshire and Surrey Pathology Network.

Find out more about the **Pathologist Power List here.**

The ACB team sat down (virtually) with Elaine Cloutman-Green (ECG) and Katy Heany (KH) to understand the work that goes on behind-the-scenes for someone featured on The Pathologist Power List.

ACB: What type of work was required to reach this result?

ECG: The work leading to the Power List nomination has been building for a number of years. I've been writing a weekly blog since 2020, undertaking outreach work since 2008, been Scientific Director of Project Nosocomial since 2018 and running a conference (HCSed) with a focus on education since 2017. All of these pieces of work, along with being a Trust Lead Healthcare Scientist with a remit for education, have come together as a body of work aimed at raising awareness of the work of Healthcare Scientists and inspiring discussions around complex healthcare topics and leadership.

KH: Having been contacted by my nominators, I know it was both my work in the pandemic response on Operational supplies for the DHSC/UKHSA team and the work I have done with the #PathologyROAR team to promote the pathology profession to our future workforce.

ACB: Why are your topics of focus important to you and/or to healthcare more broadly?

ECG: I'm a passionate believer in the importance of communicating what we do as healthcare scientists, but also what happens within my speciality of Infection Prevention and Control. We are moving away from a healthcare hierarchy where a healthcare professional is the expert in the room and dictates decisions to their patient to a setting where care is co-produced between clinician and patient. Being able to talk to patients, supporting understanding of processes, research and choice is therefore key to us working together for the best outcomes. It's why I started the *girlymicrobiologist* blog and undertake so much public engagement work.

KH: I believe Pathology has an obligation to proactively find ways of making our services more accessible and efficient. Point-of-care testing technology has improved dramatically in the last five

years and is capable of bringing about significant improvement in patient care when managed and implemented with leadership from Pathology. While, at times, it may not be as accurate as the laboratory, when asked the right question it can give a clear answer.

ACB: How does receiving this recognition make you feel?

ECG: It's such a lovely honour to have been featured on the Power List, but it's important to note that, in healthcare, we never achieve anything on our own. The importance of working in teams and breaking down silos is key to maximising the impact of healthcare science across healthcare settings.

KH: I am delighted to receive this recognition from my peers and for the work I have done in the last year to make my nomination worthy of the 2022 list. In Pathology, we are rarely recognised for going above and beyond our roles and should do more to demonstrate the fabulous Pathology community we have in the UK.

ACB: What's your top tip for professionals seeking to be of influence in their field?

ECG: To be authentically you and follow your passions. Everyone has their own very individual contribution that they can make. Acknowledging the benefits of this individuality to the system is important and means that you are better placed to inspire others to create long-term change.

KH: I believe that, to influence, one must have integrity. Those you work with or make contact with must feel that you present your whole self, limitations and expertise to build a genuine connection. My advice is to be true to yourself and those around you, hold your professional standards and if your nature is to rebel, then do so with care. ■

Image credit: *The Pathologist*

ACB welcomes new members

The ACB is proud to introduce you to our new Members who have joined us since the last edition of *ACB News* and we hope everyone will extend a warm welcome to:

Scott Lake, Trainee Clinical Scientist, Aneurun Bevan University Health Board
Nathan Timbrell, Senior Biomedical Scientist, Viapath Group LLP
Annabel Rodham, Trainee Clinical Scientist, Cardiff and Vale NHS Trust
Stephanie Hutchings, Clinical Scientist, UK Health Security Agency (UKHSA)
Manjot Gill, Trainee Clinical Scientist, Swansea NHS Trust
Andrea Baxter, Specialist Registrar in Chemical Pathology, Leicester Royal Infirmary
John Gilman, Trainee Clinical Scientist, Salford Royal NHS Foundation Trust
Aaron Doherty, Trainee Clinical Scientist, Nottingham University Hospitals NHS Trust
Ellis Bryden, Trainee Healthcare Scientist - Clinical Biochemistry, Cambridge University Hospitals NHS Foundation Trust
Ian Butler, Senior Clinical Scientist - Clinical Microbiology, Barts Health NHS Trust
Marie Anne Chattaway, Pathogen Lead for Salmonella Reference Service, United Kingdom Health Security Agency (formally PHE)
Mohammad Shahaan Shafiq, Trainee Clinical Scientist - Clinical Microbiology, Lancashire Teaching Hospitals NHS Foundation Trust
Gemma Hunter, Trainee Clinical Scientist (STP), East Lancashire Teaching Hospitals NHS Trust
Danielle Bell, Trainee Clinical Scientist, NHS Grampian
Stuart Imlach, Senior Research Scientist, NHS National Services Scotland
Laura Stephens, Trainee Clinical Scientist (Biochemistry), University Hospital Plymouth NHS Trust
Shannon Rees, Trainee Clinical Scientist (STP), University Hospitals Plymouth NHS Trust
Leanne Young, Trainee Clinical Scientist, The Royal Wolverhampton NHS Trust
Layla Ali, Trainee Clinical Scientist, Liverpool University Hospital Foundation Trust
Keir Bailey, Trainee Clinical Scientist, St James's University Hospital
Rachel MacAndrew, Specialist Biomedical Scientist, York Teaching Hospital NHS Foundation Trust
Chetanand Imrit, Medical Laboratory Technologist/ Senior Medical Laboratory Technologist, Ministry of Health and Wellness
Richard Barton, Principal Clinical Scientist, Leeds Teaching Hospitals NHS Trust
Mollie Joyce, Trainee Healthcare Scientist (STP), Manchester University NHS Foundation Trust
Katie Barker, Trainee Healthcare Scientist, University Hospitals of Leicester NHS Trust
Daniel Casey, Trainee Clinical Scientist, Nottingham University Hospitals NHS Trust
Rajalakshmi Valaiyapathi, Metabolic Medicine SpR, King's College Hospital NHS Foundation Trust
Tessa Forbes, Trainee Clinical Scientist, Barts Health NHS Trust
Penelope La-Borde, Trainee Clinical Scientist (Biochemistry), University Hospitals Birmingham NHS Foundation Trust
Sam Salisbury, Trainee Clinical Scientist, Royal Devon and Exeter NHS Foundation Trust
Chloe Austin, Trainee Clinical Scientist, Nottingham University Hospitals NHS Trust
Reena Kumari, Doctor, Leeds and York Partnership NHS Foundation Trust
Wesley Choi, Student, University of Manchester

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LAB TESTS ONLINE UK

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Produced by The Association for Clinical Biochemistry & Laboratory Medicine

With support from The Royal College of Pathologists — Pathology: the science behind the cure; IBMS

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.

LTO-UK fact of the month

We attended the Best Practice Show at Birmingham NEC in September. This is a big show to connect professions across primary care and we made lots of contacts with healthcare workers who are at the coal face of patient management. We were also at UKMedLab22 in London. While this may be preaching to the converted, attending an event for lab professionals, we can never have too many Champions (and if the idea of promoting LTO-UK locally to you interests you, either at work or, for example, at your GP surgery, please see below and contact us to find out more)!

Meet the Lab Tests Online-UK Board

Microbiology Rep, Jennifer Henderson

Jennifer went to university in Leicester before getting her first role at Peterborough District Hospital as a Medical Laboratory Assistant in Microbiology. After three months and gaining some necessary clinical laboratory skills, she was successful in securing a Trainee Biomedical Scientist (BMS) position within the same department. Twelve months later, following successful completion of the IBMS competency registration portfolio, she moved to London to start an MSc in Clinical Microbiology at Queen Mary's University. Whilst completing the MSc full time, Jennifer also worked part time as a BMS at Whipps Cross Hospital and commenced the specialist portfolio in Medical Microbiology. Jennifer has since worked in laboratories in Brighton, London and Essex, where she progressed to a senior BMS. During these posts, still keen to continue her professional development, she has completed the Higher Specialist Diploma with the IBMS and a Professional Doctorate in Biomedical Science.
Jennifer has since left the NHS and is now working at UKHSA within the UK NEQAS Department as a Scheme Organiser for Bacteriology & Mycology.
She sits on the Board of Directors at UK NEQAS and is on the Specialist Advisory Panel for Medical Microbiology with the IBMS.

Changes are a'coming!

As mentioned last issue, we are in the process of revisiting what LTO-UK means to users so there may well be changes afoot. Please watch this space for further information!

How to get involved

Join the editorial team

If you are interested in contributing to the vital work of the editorial team to keep the website up-to-date and to introduce new material please contact us for more information.

Become a Lab Tests Online-UK champion

Join our army of Champions and promote LTO-UK locally and nationally. Champion packs provide a great starting point with ideas and marketing materials, for more information or to join our champions please contact us.

Promote LTO at national events

We're also on the lookout for people to represent LTO-UK at conferences to speak to delegates and let them know how great the website is for the patients they care for, or indeed as a resource for their own education. If you're interested, please contact the LTO Office at the email below.

Email: **labtestsonlineuk@acb.org.uk** Website: **labtestsonline.org.uk** Follow us

Glancing back at UKMedLab22

It was a joy to see our Laboratory Medicine peers come together once again during UKMedLab22 from 8th-10th November. Across the first two conference days we heard eminent speakers discuss scientific content, with topics spanning lipids, renal medicine, cancer and alkaptonuria.

Crucial management topics, such as demand optimisation and getting labs to Net Zero, provoked new ideas and we learned about new developments from Laboratory Medicine suppliers during industry-sponsored workshops.

On the third day, Trainees joined separate Training Days for Microbiology and Biochemistry and the National Audit Meeting covered topics including primary hyperaldosteronism and thyroid function tests in paediatrics and pregnancy.

Look back at the full UKMedLab22 agenda here.

Conference highlights

We asked some of our ACB Committee Chairs what the highlight of UKMedLab22 was for them. Sit back, grab a hot drink and enjoy their reflections ...

Kath Hayden, President-Elect

International Award Lecture: EFLM Green Labs Initiative and 'How can the Laboratory Medicine profession contribute to Net Zero' session

Reflecting the emerging importance of sustainability in medical laboratories, Prof Dr Tomris Ozben, President of the EFLM, opened the discussion with an excellent overview of the EFLM Green Labs Initiative and the resources that have been made available to increase sustainable practice.

A thought-provoking Net Zero session began with James Connelly from My Green Lab highlighting that the contribution to energy emissions by laboratories far surpasses those from traditional industrial settings; this was followed by Lisa Dittmar (NHSE) and Helen Dent (BIVDA) covering the NHS Net Zero roadmap, work on-going within the IVD industry, and how we in the laboratory medicine profession can contribute, including, as Sheri Scott explained, in the education of our future scientists.

Impact Award Lecture

UKMedLab22 saw the introduction of the inaugural ACB Impact Award, an opportunity for ACB Members working in Laboratory Medicine to showcase, and be recognised for, an initiative they have delivered which has resulted in a positive change to a service. The winning submission delivering the Impact Award Lecture was Dr Ranganath Lakshminaryan and colleagues from Liverpool who delivered a really inspiring lecture on 'The National Alkaptonuria Centre – making a difference through innovation and excellence', describing the disease process, advances in clinical treatment provided by the Centre and the on-going research into this debilitating condition, made possible by collaboration between the laboratory, the patients, the AKU Society and the University.

Sarah Robinson, Director of Conferences and Events

Interactive Clinical Cases

It was wonderful to see so many faces at UKMedLab22, seeing everyone coming together to share good practice and learning was really valuable.

The meeting encouraged input from delegates across the profession and there was an excellent response and uptake

from those commencing in their career to those that are more established. This was highlighted throughout the conference in a variety of ways from poster presentations to oral presentations at the parallel and plenary sessions.

The interactive clinical cases are always very popular and this year the presentations did not disappoint. The cases were expertly presented and gave the opportunity for the audience to participate. Was everyone else as relieved when they got an answer correct? And who knew that parathyroid glands were translocated into patient's arms? Not me!

There were two poignant points to my week – meeting a group of third-year STP Trainees at the social evening and meeting a group of Microbiology Trainees at the Training Day, who were meeting each other for the first time. This confirmed the value of an in-person event.

Alexandra Yates, Director of Scientific Affairs

Poster session and Prizes

I enjoyed all aspects of UKMedLab22, from international lectures, coffee breaks on the terrace, catching up with old colleagues, and the varied scientific and leadership content in the parallel sessions.

I would like to highlight what can sometimes be an overlooked aspect of national meetings – the variety of work done by ACB Members displayed in scientific posters. This year we had over 100 posters, including 11 that were nominated for Best Clinical Case Poster (6) and Best Audit Poster (5). Judging the Clinical Case posters was such a rewarding task, where it was clearly displayed the importance of the Clinical Biochemist's role in the investigation of unusual patients' presentation or laboratory findings.

I took the opportunity, in a quiet moment, to take a walk around all the other posters on day two, and I still find it incredibly inspiring the work that goes on across the country and internationally. I came back full of ideas for my own laboratory. I would also like to highlight that **posters are available to review on the ACB website for Members** for those of us who didn't get chance to go round them all.

Hazel Borthwick, Director or Education, Training and Workforce

ACB Medal Award

UKMedLab22, the ACB's first national face-to-face meeting since the pandemic, for me was a wonderful success. Meeting colleagues who I hadn't seen for years and finally getting back to some excellent scientific CPD was very much welcomed. The high standard of posters generated many new ideas for me to take back to my own Trust, which will no doubt lead to service improvements.

The one session that I look forward to is the ACB Medal Award and this year the content and presentations did not disappoint. The topics discussed within this session ranged from highly specialised, giving others an insight into the highly technical areas of our profession, to those

Photo *by Alastair Fyfe*

Attendees at the Biochemistry Training Day

problems that we all face day-to-day.

This session gives the profession the platform to showcase our newer scientists and the valuable role that they have in moving the science forward. There is always something to be learned from this session, from bringing in new techniques to reviewing current processes. Whilst this session can be nerve inducing for Trainees, it provides valuable experience. I hope it is something that they can look back on and be proud of themselves.

Delivering a presentation to more established members of the profession can be daunting but every candidate did an outstanding job of demonstrating the work that they had undertaken and answered the questions from the probing audience to a high standard.

Mayur Patel, Director of Clinical Practice

Future Biomarkers

I particularly enjoyed attending the Future Biomarkers session, where fascinating presentations on the scientific data on potential markers for traumatic brain injury were given. There was an excellent presentation on how translational research involving the biomarkers for pre-eclampsia risk, sFlt-1 and PlGF were rolled out nationally for clinical use. This involved collaboration between researchers at Oxford University and the NHS laboratory based at the John Radcliffe Hospital which was pivotal in progressing the clinical trial. This work highlights the importance of NHS laboratories in clinical research which has directly benefited patients in reducing hospital admissions and reliably detecting pregnant women at increased risk of developing pre-eclampsia who can receive appropriate management.

Rob Shorten, Chair of the Microbiology Professional Committee

Microbiology and Biochemistry Training Day highlights

It was great to see so many Trainees learning from the expert speakers and networking with each other face-to-face for the first time in several years.
The initial feedback was very positive and the Trainees seemed to really value the educational content.

Naomi Gadsby, Microbiology Training Day Lead

We are very grateful to our speakers, who, despite several last-minute challenges due to the transport disruption, delivered a fantastic and wide-ranging programme, including clinical cases, medical learning and exam preparation. The in-person event was really interactive and the RCPath was a great venue, enabling us to take part in the wider UKMedLab22 meeting.

Katy Heaney, Biochemistry Training Day Lead

It was a great opportunity to share a deeper insight into POCT with Biochemistry Trainees and consider POCT results from the perspective of our clinical colleagues. For example, in the lab, we refer to sample types by their stabilisers or top colours, in the hospital the blood gas analyser refers to where the sample is sourced from, for example, venous blood, cord blood or fetal scalp.

Trainees had a chance to run a urine dipstick test, a blood gas sample and test using a glucose meter, while having a wider discussion on POCT EQA, business cases and consider what makes a robust POCT device. ■

Congratulations to all the Award and Prize winners!

Impact Award
Ranganath Lakshminarayan
Nicolas Sireau
James Gallagher

International Award
Tomris Ozben

Transatlantic Award
Shannon Haymond

Foundation Award
Judith Strachan

Medal Award
1st Bryony Horton
2nd Rebecca Lo

Clinical Cases Oral Presentation Prizes
1st Susan Oddy
2nd Niamh Horton

Audit Poster Prizes
1st Alex Yates
2nd Patricia Woodley

Clinical Cases Poster Prizes
1st Carrie Chadwick
2nd Katherine Onions

National Audit Meeting Poster Prizes
1st Sarah Blampied
2nd Cerys March

Left to right: ACB President, Bernie Croal with Impact Award winners Nicolas Sireau, Ranganath Lakshminarayan and James Gallagher, with Kath Hayden, President-Elect

Foundation Award winner – Judith Strachan

Transatlantic Award winner – Shannon Haymond

International Award winner Tomris Ozben with Kath Hayden

Medal Award winner – Bryony Horton

Audit Poster Prize winner – Alexandra Yates

Clinical Case Oral Presentation winner – Susan Oddy

Photos *by Alastair Fyfe*

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Deacon's Challenge Revisited

No 23 - Answer

A new method for hCG in urine is being evaluated. The concentration in a sample from a pregnant woman is measured at 8,240 IU/L. A 50 µL aliquot of an international standard containing 50,000 IU/L is added to 450 µL of the same urine sample and the sample mixed. On measuring the mixed sample, the new concentration is found to be 12,100 IU/L. What is the recovery of hCG by this method?

MRCPath, Spring 2002

$$\text{Recovery (\%)} = \frac{\text{Amount recovered} \times 100}{\text{Amount added}}$$

A recovery experiment is usually carried out by adding a known amount (the "spike") of standard to a patient's sample ("base sample") to create a "spiked sample". The spiked and base sample are then assayed and the recovery calculated:

$$\text{Recovery (\%)} = \frac{(\text{Spiked result} - \text{Base result}) \times 100}{\text{Spike added}}$$

Concentration can be substituted for "amount".

The increase in hCG concentration which should result from addition of 50 µL of hCG solution, containing 50,000 IU/L of hCG, to 450 µL of patients sample (i.e. the "spike") is:

$$\text{hCG spike} = \frac{\text{Volume of stock (µL)} \times \text{Concentration of hCG stock (IU/L)}}{\text{Final volume of spiked sample (µL)}}$$

$$= \frac{50 \times 50{,}000}{(50 + 450)}$$

$$= 5000 \text{ IU/L}$$

"Spiking" of the base sample has also diluted its hCG content so the base value which is to be subtracted from the "spiked value" must be adjusted to take this into account:

$$\text{Base concentration} = \frac{\text{Measured conc (IU/L)} \times \text{vol base sample mixed with "spike" (µL)}}{\text{Total volume (µL)}}$$

$$= \frac{8240 \times 450}{(450 + 50)}$$

$$= 7416 \text{ IU/L}$$

$$\text{Therefore, recovery} = \frac{(12100 - 7416) \times 100}{5000}$$

$$= 4684 \times 100 = \mathbf{93.7\%}$$

Question 24

A proposed diagnostic serological test for coeliac disease was evaluated in 200 consecutive patients referred to a Paediatric Gastroenterology Service in whom the condition was suspected clinically. The test result was compared with the diagnosis as established by biopsy, withdrawal of gluten and response to re-challenge.
On this basis 76 children had the condition of whom only 64 gave a positive test result: 10 positive test results occurred in children who were shown not to have coeliac disease.

Calculate the sensitivity and specificity of the test and the predictive value of a positive result.

MRCPath, May 1998

Publication Deadlines

To guarantee publication, please submit your article by the 1st of the preceding month (i.e. 1st January for February 2023 issue) to:
editor.acbnews@acb.org.uk
We try to be as flexible as possible and will accept articles up to the 20th 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. ■

Microbiology Training Day attendee reports

Stephanie Hutchings, Clinical Scientist writes:

This was the first year I had attended the ACB Microbiology Training Day UKMedLab22. As a newly qualified Clinical Scientist, I was keen to meet up with others who I trained with on the STP Clinical Microbiology course and to catch up and to see other peers I have met who are also embarking on the HSST. Starting off the day were some clinical cases. These were varied with case studies in Microbiology, Virology, Parasitology and Mycology. There was something for everyone and there were lots of questions fired around. Next we had some interactive case discussions on infection control, public health and travel health by some experts in the field of these disciplines. There have been a lot of national events recently and over the years due to different infection outbreaks (not COVID-19!) and therefore it was really useful to put ourselves into the shoes of those leading the investigations and have a think about how we would approach these scenarios. I think attending one of these training days gives you a sense of what you may be able to achieve one day as a Clinical Scientist.

For those of us on the HSST training scheme, we were very keen to attend the medical learning sessions and for me the medical imaging session was a highlight. I am a real beginner with looking at X-rays and this session was super helpful. One of the key messages was that changes on an X-ray may be due to infection causes but also due to other causes such as malignancy. Following this, we had a few encouraging presentations and completely honest accounts on sitting FRCPath exams by those who have also taken them as Clinical Scientists. These exams seem like a daunting prospect right now for me but I feel more prepared after these sessions, knowing more about how to prepare and what I can do between now and the first exams. Finally, the exam preparation session was excellent and Naomi presented a great set of questions to get everyone talking about the possible answers.

This day was a super filled day and I would say one of the best CPD events I have attended for the quality of the sessions overall. The presentations were excellent and provided by real experts who were open to answering all sorts of questions without any judging! ■

Jasveen K. Sehmi writes:

This year's face-to-face Microbiology Training Day at the ACB's UKMedLab22 event provided a broad and comprehensive overview of the scope of knowledge required to practice as a Consultant in Medical Microbiology or Virology.

There were interactive case discussions covering the main pathogen classes, including fulminant hepatitis due to primary HBV in a pregnant woman which not only provided an interpretative overview of the evolution of HBV serological markers over the infection time

Photo *by Alastair Fyfe*

Lisa Berry

Photo by Alastair Fyfe

Attendees at the Microbiology Training Day

course, but covered interesting aspects regarding its impact on the pregnancy, modes of acquisition and potential long-term sequelae. The Microbiology case took us through a journey of investigating an unusual cause of a pacemaker infection and highlighted the importance of considering unusual pathogens and using a multi-disciplinary approach when the patient is immunocompromised.
The results of investigations of four different fungal infections were presented in a very entertaining fashion and the parasitology session was an expert guide on the diagnosis of malarial infections.

Review of an imported diptheria case in an asylum seeker raised awareness of the vigilance and protocols required to maintain Public Health not only due to emerging pathogens, but also novel routes of entry for old foes and was very topical.
Another presentation gave insights into the handling of high consequence viral haemorrhagic fever cases, an important differential at many times due to the current propensity for global travel.
As a laboratory-based Clinical Scientist, I found the presentations on the IPC investigations and measures to deal with an outbreak of CPE in a HaemOnc ward, as well as more clinically focussed ones regarding the assessment of patients and on the interpretation of imaging investigations particularly educational and fascinating!

It goes without saying that the sessions on exam preparation were very welcome! Presentations on the preparation for both Part 1 and 2 examinations provided details on the examination process as well as guidance on structured learning methods, resources and the tools available.
Most importantly, the presenters were extremely positive and encouraging.

The presentations were varied, informative and extremely engaging, provided by a great mix of both Medical and Clinical Scientist Consultants.
The group size, room layout and easiness of all presenters encouraged open discussion and participation from the delegates. While it was an intensive day, the lovely venue, well-timed breaks and delicious refreshments kept us going and also provided excellent opportunity to meet both experts and peers and make useful connections to share our training journeys with. I left feeling stimulated, enthused and raring to start! ■

The Diggle Microbiology Challenge

These multiple-choice questions, set by Dr Mathew Diggle, are designed with Trainees in mind and will help with preparation for the Microbiology Part 1 FRCPath exam.

Question 33 from October's ACB News

The following are true or false questions related to Poliomyelitis, also known as polio or infantile paralysis:

A. *Polioviruses are small single-stranded DNA viruses that belong to the Enterovirus subgroup of the family Picornaviridae.*
B. *Humans are the only reservoir for polio virus.*
C. *Poliovirus type 3 has historically been the predominant cause of poliomyelitis worldwide and continues to be transmitted in endemic areas.*
D. *The virus is transmitted via droplets or aerosols from the throat and by faecal contamination of hands, utensils, food and water. The majority of transmissions occur via person-to-person contact or the faeco-oral route, although the oro-oral route is also possible.*
E. *The incubation period is approximately 7-10 days (range 4-35 days) and about 25% of infected individuals develop mild clinical symptoms including fever, headache and sore throat. Infected persons are most infectious from 7-10 days before and after the onset of symptoms. However, poliovirus is excreted in the stools for up to six weeks.*
F. *Immunisation is the cornerstone of polio eradication. Two types of vaccine are available: an inactivated poliovirus vaccine (IPV) and a live attenuated oral polio vaccine (OPV).*

Answers

True – B, D, E and F.
False – A: *they are small single-stranded RNA viruses that belong to the Enterovirus subgroup of the family Picornaviridae; and* ***C:*** *There are three wild types of poliovirus (WPV) – type 1, type 2, and type 3. Type 2 wild poliovirus was declared eradicated in September 2015, with the last virus detected in India in 1999. Type 3 wild poliovirus was declared eradicated in October 2019. It was last detected in November 2012. Only type 1 wild poliovirus remains.*

Question 34

The following are true or false statements related to Respiratory Syncytial Virus (RSV):

A. Within a non-pandemic environment almost all children have been infected by the time they are two years old.
B. It may cause bronchiolitis.
C. It may cause croup.
D. It is a double-stranded DNA orthopneumovirus.
E. Antibiotic therapy is an effective treatment.

The answer to Question 34 will appear in the next issue of ACB News – enjoy! ■

The ACB at FIS 2022

Callum Goolden, Trainee Clinical Scientist (Microbiology), Lancashire Teaching Hospitals NHS Foundation Trust

On the 22nd of September 2022, the world of Microbiology and Infectious Diseases descended on the Business Design Centre in Islington, London, for the largest UK-hosted infection conference – The Federation of Infection Societies (FIS) annual conference. Hosted by the Healthcare Infection Society (HIS), the event consisted of two days of scientific and clinical content, including plenary lectures, debates, round table discussions, clinical cases, and of course, plenty of networking!

This year the ACB Microbiology Professional Committee hosted two sessions, focussing on two hot-topics in the world of microbiology laboratory services: whole genome sequencing (WGS) and point of care testing (POCT).

"WGS in the diagnostic lab-beyond SARS-CoV-2" provided an excellent insight into the potential utility of WGS and metagenomics as diagnostic and epidemiological tools, whilst also delving into the issues and barriers faced when trying to implement these methods into clinical practice.

Professor Jonathon Edwards first spoke about his experience implementing a clinical metagenomic pathway at Guys & St Thomas Hospital, London. Professor Edwards and his team implemented nanopore long-read sequencing with real-time analysis and interpretation within the specialist ECMO service, enabling rapid microbiology result generation. Fresh respiratory samples could be processed via the pipeline, generating organism IDs within 30 minutes, resistance genes in ~2 hours and full sequence alignment overnight. This project enabled samples to be taken

The Business Design Centre, London

in the morning and then processed, and interpreted, all prior to afternoon microbiology ward rounds to provide information to guide clinical management. The information gathered via the metagenomic pathway enabled the microbiology team to STOP or de-escalate antimicrobials within the same day or START/escalate based on organism ID and intrinsic resistance/local epidemiological information. A key benefit noted by Professor Edwards was the ability to pick

Professor Jonathon Edwards

Dr Anna Kovalenko

up anaerobes and fastidious organisms that would typically be missed by routine culture. Current barriers to metagenomics replacing culture as the core diagnostic methodology include: high costs, the requirement for understanding of metagenomic information and the difficulties associated with accreditation and standardisation.

Dr Anna Kovalenko, a Research Associate Scientist at Cambridge University, gave a talk on her research performing WGS in the field for the real-time epidemiological study of Hepatitis C virus (HCV) transmission in internally displaced populations in the Ukraine. Using a "lab in a suitcase" approach, utilising hydroponic tents to maintain molecular workflow separation, Dr Kovalenko's team performed low-cost sequencing of 57 HCV genomes, identifying multiple chains of transmission and clusters. The results of the work showed that HCV infection was most likely to happen within the first 18 months of arrival post-displacement, meaning prevention efforts are beneficial if implemented soon after migration. Genetic mapping also supported previous work in showing social network as a driver for transmission chains, with HCV infection occurring more readily between individuals from the same original host region.

Professor David Eyre from Oxford University wrapped up the session by discussing the utility of WGS for bacterial transmission investigation. He provided evidence that transmission from known infected or colonised patients in hospital may explain fewer cases than previously thought, and that multiple introductions of pathogens from the community may play a greater role. He also explained how WGS has shown that some subtypes of *C. difficile* are more effective at persisting and transmitting within hospitals than others. These findings evidently have implications for our practice of infection prevention and control, with the use of sequencing-based surveillance having the potential to reduce nosocomial infections and associated costs.

In the second session, the three speakers covered the use of point-of-care testing for diagnosis and infection prevention and control (IPC) in both the hospital and in the community.

Professor Tristan Clark from the University of Southampton gave a presentation explaining POCT and outlined the recent evolution of sample-to-answer molecular platforms with performance characteristics on-par with current gold standard methods. He went on to discuss the evaluation of POCT platforms/pathways and how, until recently, this consisted of relatively low-quality observational data, with no standardised outcome measures and neglected infection control utility. He explained how, by conducting the FluPOC study, his team has shown that POCT led to more rapid initiation of antivirals, quicker isolation or discharge of positive patients and greater clinical outcomes denoted by a greater hospital recovery score. More recent work with SARS-CoV-2 showed a 50% risk reduction

for hospital acquired infection where POCT was performed. GastroPOC has shown that POCT can result in decreased side-room time through earlier de-isolation of non-infected patients.

Liz Cross, a lead nurse based at a community GP practice, presented her work using POCT of C-reactive protein (CRP) for guiding prescribing decisions in the community for patients presenting with acute cough. Liz highlighted the importance of senior healthcare scientists and leaders being able to support exciting initiatives in the community.

In the final session, Dr Katy Heaney of Frimley Health NHS Foundation Trust talked of her experience running a multi-trust POCT service. She spoke of debunking the reputation of POCT being uncontrolled or providing poor quality results, stating that when suitable controls are in place and the limitations of the technology are acknowledged and accounted for, POCT can be used to dramatically improve patient care decision making. Dr Heaney spoke of quality assurance in POCT, describing how the frequency of performing IQC in POCT is often a pragmatic decision based on the sophistication of the test, the consequence of an erroneous result, the setting in which the test is performed and by who. In addition, EQA programmes for POCT should be clear and provide uncomplicated result outputs that non-specialists can easily understand, using arrows and colour coding where appropriate. Additional challenges faced in POCT include IT integration, rapid result interpretation and validation, maintaining a business case and limiting access to the intended scope. Sometimes the safest place for POCT reagents is the Matron's drawer!

Dr Katy Heaney

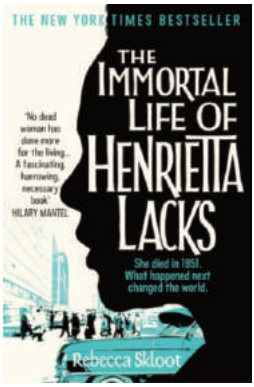
As an early career Microbiologist, events like FIS are so important for me and others in my position to develop knowledge of the laboratory and clinical aspects of infectious disease and microbiology. Aside from the pure microbiology content, these conferences enable trainees to develop an enhanced understanding of health systems as a greater interwoven network, which is absolutely invaluable as we progress in our careers. Bringing together those interested in infection sciences is such an important way to connect with friends and colleagues from around the UK and form networks which may help drive forward health innovation and enhance the patient experience in the years to come.

I'd like to put on record my thanks to the organising committee of FIS 2022, all of the speakers and the ACB Microbiology Committee for facilitating such an excellent event. I look forward to travelling up to Edinburgh in 2023 to do it all again! ■

Photos by Simon Callaghan: www.simoncallaghanphotography.com

The immortal life of Henrietta Lacks

Elizabeth Ralph, Great Ormond Street Hospital for Children NHS Foundation Trust



In celebration of Black History Month in October, this book review highlights an eye-opening, and at times harrowing, read – *The Immortal Life of Henrietta Lacks* written by Rebecca Skloot. Many of us working in Life Sciences will have used, or at least heard of, HeLa cells. I first heard of this cell line during an undergraduate cell biology lecture, when we were told that these cells were derived from the cervical carcinoma of a woman whose identity was unknown, but who was perhaps called Helen Lane – which is why the cell line was called HeLa. The true identity, and life, of the woman from whom the cells were taken remained a mystery, some say deliberately obscured, for many years but was brought to attention for the first time in this book.

Rebecca Skloot is an American science writer who became interested in the story of HeLa cells when she too heard about them in a biology lesson. The name of the 'unknown woman' was not Helen Lane, but was in fact Henrietta Lacks, an African-American woman born in 1920 in Virginia, USA, and who later settled in Baltimore. The book covers Skloot's journey to uncover the story of Henrietta Lacks and her family, giving them the recognition they deserve. She met with the Lacks family visited the places that she had lived, and interviewed doctors and researchers. Her book is an account of institutional racism and the ethics surrounding biological and medical research.

When, in 1950, Henrietta Lacks began to suffer with the symptoms of what was then diagnosed as cervical cancer, it seemed fortuitous that Baltimore where she was living was also the location of the renowned Johns Hopkins Hospital. At that time, it was the only hospital in the area offering medical treatment free-of-charge to the black community. Dr George Gey was also working at Johns Hopkins at that time, trying to be the first scientist to grow a human cell line outside of the body as part of his work on cancer. Gey and his team would take samples from operations performed by the surgeons working at the hospital, and try to establish *in vitro* cultures, but had had little success.

When cells of a biopsy taken from Lacks' carcinoma were found to replicate quickly and easily in the lab, there was much excitement within the scientific and medical community. Cells were sent by Dr Gey, initially locally, but then nationally and across the world, to other researchers. However, neither Henrietta nor her family gave consent for her cells to be used in this way. Though shocking to us now, not seeking consent to take samples from the living was the ethical standard at that time. However, there were strict rules around taking tissue from the deceased. So when requesting to perform an autopsy on Lack's body, Dr Gey gave her husband

the impression that doing so would help his children by investigating the cancer that had killed their mother, when, in fact, the autopsy was carried out to harvest more samples. When geneticists visited the family in the 1970s to request blood samples from the Lacks's to study their DNA, Henrietta's daughter Deborah was still under the impression that she was being tested for the cancer that had killed her mother. It is these accounts that are the most shocking and difficult to read.

It wasn't until more than 20 years after Henrietta's death that her family even knew that her cells were still alive, let alone just how widely bought, sold and used they were. Work on HeLa cells has been involved in a wide range of developments across biological and medical science, from *in vitro* fertilisation to the polio vaccine, AIDS, and the cells have even gone into space. The trade in HeLa cells has become an international multi-million-dollar industry. In the words of Deborah, *"I have always thought it was strange, if our mother cells done so much for medicine, how come her family can't afford to see no doctors? Don't make no sense. People got rich off my mother without us even knowin' about them takin' her cells, now we don't get a dime. I used to get so mad about that to where it made me sick and I had to take pills. But I don't got it in me no more to fight. I just want to know who my mother was."* Whilst nothing can undo the wrongs done to her and her family, this book goes a long way in letting the world know who Henrietta Lacks was and her extraordinary and 'immortal' life. ■

National Audit Meeting Report

Carina Conceicao, STP in Clinical Biochemistry, Glasgow Royal Infirmary

This year's National Audit Meeting was held at the RCPath headquarters in London. Dr Wassif, ACB National Audit Lead, welcomed over 50 delegates to the first in-person post-pandemic National Audit Meeting.

The meeting kicked off with Finlay MacKenzie, UK NEQAS Deputy Director, summarising the findings of a thyroid function test (TFT) reference interval (RI) national audit in adults, pregnancy and neonates. He started by highlighting the difficulties around determining RIs for TFTs, for which method variability and individual perception were noted as contributing factors. Finlay also discussed the big challenges that hinder standardisation of RIs for TFTs, including cost, staff time and the extensive list of published RIs. The key findings of this audit were: poor agreement in RIs between and within methods, particularly evident in the paediatric population; and not every laboratory has separate RIs for pregnant adults and children, even though the data showed considerable differences. Additionally, the majority of users apply manufacturer's RIs, which do not necessarily represent the UK population. Therefore, Finlay concluded by appealing for a standardised RI for TFTs that is pragmatic, while also addressing the main groups where differences are seen.

Next, Professor of Endocrinology Kristien Boelart gave an overview of NICE guidelines addressing the management of thyroid disorders in pregnancy, including thyroid conditions specific to pregnancy, e.g. thyroid autoimmunity and isolated hypothyroxinaemia. Professor Boelart highlighted the variation in RIs and informed attendees that she and colleagues at the Royal College of Obstetricians and Gynaecologists are formulating guidance on these in pregnancy. She presented four cases to exemplify the management of thyroid disorders in pregnancy. These cases highlighted that untreated thyroid disorders invariably lead to adverse foetal and maternal pregnancy outcomes.

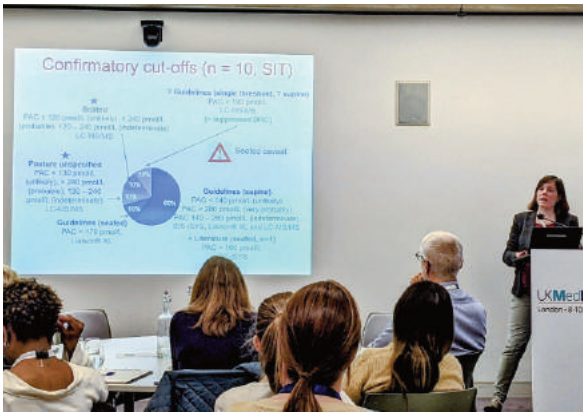
Finlay MacKenzie

The main messages were that adequate replacement of levothyroxine pre-conception and TFT monitoring is crucial, however, levothyroxine treatment in women with mild hypothyroidism or thyroid autoimmunity is not always associated with improved fertility outcome. Conversely, overzealous levothyroxine therapy is associated with adverse foetal and maternal outcomes. For hyperthyroid mothers, the recommendation is monitoring of thyroid function and thyroid receptor antibody

(TRAb) levels. If treatment is required pre-conception, women should be prescribed propylthiouracil (PTU), as other anti-thyroid drugs have an increased risk for the foetus. Professor Boelart focussed attention on how pregnancy can alter thyroid function and autoimmunity, emphasising the importance for standardised RIs.

The morning session concluded with Consultant Paediatric Endocrinologist Dr Renuka Dias, who gave an overview on thyroid disorders in children, including congenital hypothyroidism (CHT), autoimmune Hashimoto's, hyperthyroidism, thyroid storm and sick euthyroid syndrome. CHT is the most common disorder on the newborn screening programme. The cut-off value for TSH has been progressively decreased due to the development of methods with improved analytical sensitivity (1981: 80 mU/L to 2019: 8 mU/L). Dr Dias emphasised that timing of treatment and dosage for CHT are crucial to avoid adverse outcomes, as low doses of levothyroxine at a later age (i.e. 3 years) were associated with cognitive impairment, whereas high doses at earlier age (i.e. <2 years old) correlated with reduced side-effects. Dr Dias presented some clinical cases of thyroid dysfunction in children, particularly Graves' disease. The treatment approach includes anti-thyroid drugs and immunosuppressants, however children are often less responsive to anti-thyroid drugs than adults, hence dose-titration is crucial to achieve euthyroid status clinically and biochemically. She also presented a rare case of neonatal hyperthyroidism, where a hypothyroid mother developed Graves' disease during pregnancy, resulting in transfer of TRAbs across the placenta.

The afternoon session, chaired by Deputy Chair of the National Audit Committee Dr Louise Ward, started with Dr Sarah Davies presenting the findings of a national audit on primary aldosteronism (PA) and adrenal vein sampling (AVS). This audit evaluated current practice regarding AVS and diagnosis of PA with the aim to improve laboratory diagnosis of this condition. Quality control (QC) materials, RIs and diagnostic cut-off values were the main focus of this audit. Sarah reported that most laboratories use third party QC material, composed of 2-3 levels. She noted that RIs were evidence-based, however there were discrepancies that were not method-based. The diagnostic cut-offs used by laboratories were not harmonised, which can make the diagnosis of PA difficult as the diagnostic algorithm is prone to a high positive predictive value. The confirmatory testing most used was the saline infusion test, for which laboratories mainly used the cut-offs defined by the Endocrine Society. AVS is the gold standard for diagnosing PA, however Sarah noted discrepancies in current practice. For example, most laboratories did not know which AVS type was performed and for those that did there was no consensus on the type or selection criteria, e.g. selectivity or lateralisation indices. Only 22% of labs provide interpretative comments with AVS results. However, 52% did have a protocol in place to provide clinical advice regarding PA.



Sarah Davies

Professor Mark Gurnell

Next was an exciting presentation from Professor of Clinical Endocrinology Mark Gurnell from the University of Cambridge, giving an overview on PA, current practices and future prospects for diagnosis. He highlighted the burden of this disease on patients and the NHS and how early diagnosis is crucial to reduce adverse outcomes, such as heart failure, stroke or coronary artery disease.
AVS is the gold standard for diagnosing PA type (unilateral vs bilateral), however this technically challenging test is not available in all centres and requires highly skilled staff. Furthermore, AVS may not be sensitive enough to differentiate between unilateral disease and asymmetrical bilateral disease. Hence, Professor Gurnell suggested molecular imaging as the future of diagnosing the type of PA.
He presented preliminary results of the MATCH trial to be published in *Nature Medicine*, a randomised controlled trial to assess whether Metomidate PET-CT is superior to AVS in predicting the outcome from adrenalectomy in patients with PA.

This study demonstrated how this less invasive technique is preferred by patients and is also able to reliably estimate the outcome of adrenalectomy in comparison with AVS. Furthermore, other results from this trial can be used to subtype PA based on age and gender and determine the influence of blood pressure and ethnicity. Professor Gurnell concluded with preliminary evidence of somatic and germline mutations associated with PA which may aid in predicting clinical outcomes.

There were then two short presentations on regional audits. Dr Cerys March presented the findings of an audit on placental growth factor (PlGF). Low levels of this protein increase the risk of pre-eclampsia, for which the diagnosis is often subjective. This audit aimed to evaluate the service against NICE guidelines and assess clinical impact. Cerys emphasised that current guidelines do not recommend repeat testing, however 15% of pregnant women had repeated PlGF. The main findings were that PlGF results avoided 66 overnight admissions and correctly predicted the outcome in 79% of cases. Cerys concluded that the PlGF service is making a difference in the management of pregnant women with hypertension, however there is room for improvement to reduce unnecessary overnight admissions and clinic visits.
The second regional audit presentation was given by Dr Carina Conceicao, who

aimed to determine the frequency and appropriateness of qFIT and faecal calprotectin (fCalp) requests in primary care. Carina gave an overview of current local guidelines and showed that qFIT and fCalp were being inappropriately requested in parallel in patients presenting with non-persistent lower GI symptoms (i.e. <4 weeks) and that infection was not routinely excluded as a cause of symptoms. These findings led to changes in service provision at the point of requesting and aided implementation of new combined guidelines for qFIT and fCalp in NHS GGC. Through re-auditing, she showed that these changes reduced the number of inappropriate requests and also fCalp workload and associated costs.

Mary Stapleton concluded the afternoon session by presenting the findings of a national audit on critical results reporting. She looked at a range of tests, including core biochemistry, endocrine and toxicology. Mary noted that all laboratories phoned critical results and the majority of staff phoning results were BMS and also trained clerical staff. The methods of communication were not harmonised, with some laboratories phoning critical results to 111. This audit revealed that most labs use cut-offs for critical results in-line with RCPath guidance, shown by the consistency observed across different analytes. Mary noted that although there is room for improvement, it is reassuring that all laboratories have a good awareness of RCPath guidance.

After a day of interesting presentations and keen discussion, Dr Wassif ended the meeting by announcing the winners of the poster competition, Dr Cerys March with "Clinical audit/evaluation of the placental growth factor service introduced in 2020 against NICE DG23 and the Trust pre-eclampsia pathway" and Sarah Blampied with "Is this FT4 normal?". Dr Wassif expressed his gratitude to the ACB Office for facilitating hybrid presentations and thanked all attendees, presenters and organisers, namely Mike Lester, the IT wiz from the ACB Office; Giustina Marilli for her support, as well as Cheryl Taylor, Operations Manager and Jane Pritchard, Chief Executive, for their help and support. ■

Attendees at the National Audit Meeting

Abid Karim – in memory

Abid Karim, PhD, was lead Clinical Scientist and Researcher in Neuroimmunology and Autoimmunity at the Clinical Immunology Service, University of Birmingham. He delivered 33 years of NHS service working closely not only with Neurologists at the local Queen Elizabeth Hospital, Birmingham but also with colleagues from around the UK and the rest of the world.

His expertise and standing in the specialist area of Neuroimmunology meant he was constantly in demand to share his knowledge. Many junior clinicians and scientists gleaned their knowledge in this area from his educational talks, describing with authority what is known about nervous system autoimmune diseases and also the potential implications of new immunofluorescent patterns he had identified. His passion for Neuroimmunology was palpable and he would relish flagging down colleagues to look down the microscope at a rare autoantibody or an uncharacterised pattern.

Abid took great pride in teaching undergraduate and post-graduate students contributing to clinical science programmes both at the Universities of Birmingham and Manchester and supervising numerous student projects. During the pandemic he repurposed his knowledge and worked to determine a link between COVID-19 and autoimmunity.

He worked to improve diagnostic services nationally and made a major contribution to the UK NEQAS schemes in Neuroimmunology including organising regular workshops and meetings to upskill and standardise laboratory practice. Many a junior scientist would be encouraged to present an audit or research project at these meetings with his support and supervision.

Abid died after a short illness and is survived by his wife and children whom he cherished. Abid will be missed not only professionally but personally by his friends and colleagues. His enthusiasm for his work was infectious and he loved nothing more than a corridor chat sharing the latest news. ■

A.R.

ACB News Crossword

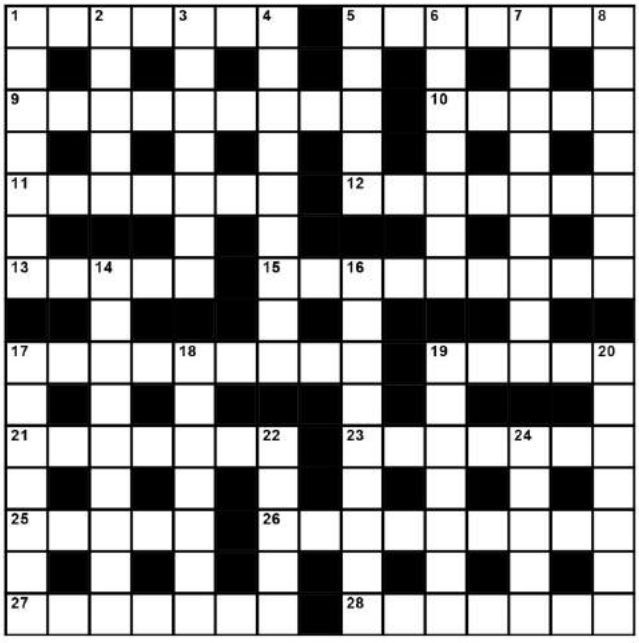
Set by Rugosa

Across

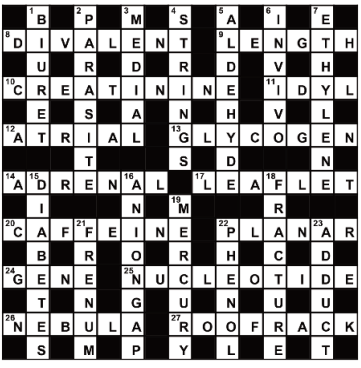
1 Damaged gold relic displays heart structure (7)
5 Delayed holding show for a sugar product (7)
9 Metal puzzle, amusing men without number (9)
10 Encouragement repeated in Monty Python sketch (5)
11 Retired rank retainers (7)
12 Not imitable: binomial theorem about a biochemical messenger (7)
13 Attribute of the Internet of Things things (5)
15 Broke new novelist (9)
17 Hormone store gone, used (9)
19 Launched as a beginner's all-purpose symbolic instruction code (5)
21 Information, some is new, concerning reduction division (7)
23 Lane hog set – lone rich drunk is one (7)
25 Pay for doctor (5)
26 A latent sodium problem during pregnancy (9)
27 Distressing carbon monoxide death of conductor (7)
28 Concocts a secret remedy (7)

Down

1 Wandering many aisles with no real objective (7)
2 Reprobate undergoes questioning, ends put away (5)
3 Provides treatment of male itches (7)
4 Bringing to light lie, citing distortion (9)
5 Plymouth transported, missing out corporal fluid (5)
6 Spurious correlations arise less using a standard for comparison (7)
7 Hormones affecting end organs (9)
8 Some clientele mention a preferred environment (7)
14 Temperate continent (9)
16 Mock unusually tiny chest (9)
17 Abnormal actomyosin fails to maintain any sort of pressure (7)
18 Italian food: their rice upset small child (7)
19 Monetary agreement for a lab instrument (7)
20 LEDs can make inexpensive sources of light (7)
22 Report condition (5)
24 Question about understanding (3,2)



Solution for October's Crossword



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To find out more about the benefits and eligibility for membership please contact Mike Lester: mike@acb.org.uk or +44(0)20 4542 6044

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