

ACBNews

The Association for Clinical Biochemistry & Laboratory Medicine | Issue 681 | February 2023



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ACB News

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The Association for
**Clinical Biochemistry &
Laboratory Medicine**

Better Science, Better Testing, Better Care

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*Front cover: The Microbiology Greens – a sustainability group from Lancashire Teaching Hospitals
Department of Microbiology with an interest in sustainable laboratory practice.
Read more about them on page 28*

Message from the President

2023 marks the 70th Anniversary of the ACB, a time not just to celebrate the achievements of the Association and its members in the past, but also to look to the future and consider the increasingly important role that Laboratory Medicine will play in healthcare in years to come.

It's been a desperate few months for healthcare in the UK, as I am sure many of you have witnessed both professionally and, perhaps, personally. We all came into healthcare with a vocational element embedded in our psyche and we must never lose sight of that. However, we must also ensure our voices are heard when it comes to highlighting deficiencies in services and conditions of work. Pay is, of course, a big part of this and is an important factor in recruiting and retaining staff. We must therefore not be ashamed or embarrassed to make a strong case for maintaining our lifestyle and keeping healthcare as an attractive place to work, regardless of the underlying economy. The ACB and its Union arm, the Federation of Clinical Scientists (FCS), will continue to be a strong voice in this regard.

2023 will bring some new challenges, as well as some old ones resurfacing. Point-of-care testing (POCT) is likely to begin featuring more as a result of improving technology and the ongoing expansion of such services, especially in community settings and in patients' homes. Ensuring safe and competent POCT will be best served with appropriate laboratory involvement; we must ensure that the relevant support is in place in terms of both governance and the necessary funding of the laboratory element of these services. The ACB is working with the IBMS and RCPATH to develop a new set of standards in this regard.



The new ISO 15189:2022 standard has started its implementation period and we will see a gradual transition towards this in the next few years. The ACB is working closely with RCPATH and IBMS on this to ensure that professional support and advice is joined up.

Lots to look forward to this year, including UKMedLab23 in June, in Leeds, a Laboratory Medicine Leaders Summit in September and the return of the ACB Residential Training course in July.

So, in its 70th year, the ACB and its members are undoubtedly stronger, wiser and more valuable than ever to healthcare. We can all best demonstrate this by working together, sharing resources and forming a powerful union of clinical and scientific excellence that impacts healthcare pathways, improves patient outcomes and champions healthcare careers. So, let's celebrate the Association in its Platinum year and use it as a strong foundation to stabilise and improve our services and professional standing. ■

Bernie Croal, ACB President

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CEO Update

As we kick off our 2023 programme of activity, the impact of the pandemic on our national meeting is still being felt. In an effort to get back to our usual early summer timetable, we have a much-shortened lead time to deliver this year's UKMedLab23 meeting. Despite this, the Scientific Committee, which this year comprises representatives from across the ACB regions, is well ahead with its plans, so look out for announcements in early March. The abstract submission process is open too, so do [visit our website](#) to find out more.

We have forged a partnership with the IBMS to deliver a Laboratory Medicine Leaders Summit at its Congress in September, where we will be exploring and discussing a range of strategic management and policy issues.

In other news, our Green Champions Group is building momentum and you will see more activity this year with a survey, a webinar in spring and a session at the Laboratory Medicine Leaders Summit.

Following the sale of Lab Tests Online by AACC to a commercial entity, we have now successfully negotiated the transfer of ownership and hosting of the UK site to the ACB, with the continued valued support of the Royal College of Pathologists and the IBMS. This transfer allows greater freedom to develop and grow the site and to maintain it as a free service for public benefit to support better patient outcomes.



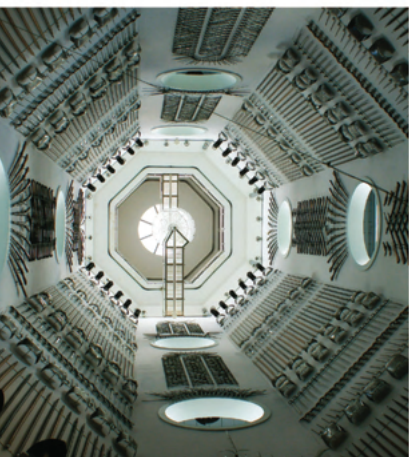
Our strategy review at the end of 2022 identified two key activities for development this year. First, a review of the Education, Training and Workforce (ETW) governance to ensure it is appropriate for the current needs of our members. This work will be led by ETW Committee Chair, Hazel Borthwick, and supported by a small group of expert volunteers. And, secondly, we will be developing a member engagement programme to drive higher involvement in our committees, content development and communications activity.

We're looking forward to another busy year in 2023 and continued growth in our membership numbers and our profile.

I and all the ACB staff team look forward to working with you and hope to see you soon. ■

UKMedLab23

Leeds • 12-14 June



Save the date!



The Association for
Clinical Biochemistry &
Laboratory Medicine

Renaming the ACB – survey results in

Jane Pritchard and Bernie Croal

During the last quarter of 2022, ACB members participated in the final consultation exercise regarding the renaming of the organisation.

After extended group and individual consultations with Members, Directors and stakeholders over a twelve-month period, we launched a final consultation which asked Members if they were in favour of supporting a name change to focus on Laboratory Medicine. If so, they were asked to vote on a choice between Association for Laboratory Medicine and Laboratory Medicine Society.

There were 444 responses to the survey. This is a very high response rate for a survey of Members, highlighting the level of interest in this topic. Of those, 62% were in favour of supporting a name change to one that focuses on Laboratory Medicine.

When assuming a mandate for the above, 401 responses were made on the choice between the proposed names, with 84.5% in favour of Association for Laboratory Medicine and 15.5% in favour of Laboratory Medicine Society.

As well as the statistical response, there was much valuable comment on the positioning, uniqueness, scientific reputation and importance of the individual scientific disciplines of the Association and, of course, which acronym might be adopted. This comment and debate is welcome and will inform how we position and communicate the Association and its activities in the future to attract Members and to increase our awareness with government, media and public.

Any proposed name change requires amendments to the Articles of Association and therefore will need to be ratified by Members at a General Meeting. The proposal to adopt the name Association for Laboratory Medicine will therefore be tabled at the next AGM, to take place on Tuesday 14 June 2023 at UKMedLab23 in Leeds. ■

Book your spot at the ACB's EDI webinar in partnership with Abbott

ACB and Abbott present an EDI webinar: Proactive inclusion as an aid to find talent

We have partnered with Abbott to deliver an interactive online session centring on Equality, Diversity and Inclusion (EDI) in the context of healthcare recruitment. This session is facilitated by Mark Powell, Country Manager for Point-of-Care at Abbott and Senior Sponsor for the UK chapter of Abbott's Ethnic Employee Network. Speakers include:

- ◆ Dilini Peiris, ACB EDI Champion and Senior Clinical Scientist, Clinical Biochemistry, University Hospital Southampton NHS Foundation Trust
- ◆ Rachel Wilmot, ACB EDI Champion, Consultant Clinical Biochemist (retired), Hull
- ◆ Joe Teape, COO, University Hospital Southampton NHS Foundation Trust
- ◆ Jane Pritchard, ACB Chief Executive

The ACB is committed to fostering a culture where individual differences and diversity are welcomed and discrimination is eliminated. This webinar, delivered in partnership with Abbott, aims to apply these values to the way the laboratory medicine sector finds talent.

Please book your spot at the EDI webinar [here](#). ■

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ACB Research & Innovation Grant Awardees

Annually, the Scientific Affairs and Clinical Practice (SACP) Committee is responsible for awarding ACB Research and Innovation Grants. In 2022, the grants were open to all Ordinary ACB Members. Applications were open between June and August and were discussed at the September 2022 SACP Committee meeting. The SACP Committee encouraged applications that promoted the ACB's Five-Year Plan, centering on Innovation, Environment and Inclusion.

The purpose of the Research and Innovation grants is to support high-quality, original, ethical research and innovation in Clinical Biochemistry, Microbiology or Immunology. They are most likely to be awarded to projects with the greatest potential for positive impact on patient outcomes.

In 2022, funds of up to £20,000 were available for the grants, with a top limit of £8,000 that could be requested per application.

The SACP Committee is delighted to announce the following recipients of the 2022 ACB Research and Innovation grants.

- ◆ **Azul Zorzoli, Royal Infirmary of Edinburgh**
Development of a culture-free method for the investigation of *Clostridioides difficile* healthcare-associated infections using metagenomic nanopore sequencing
- ◆ **Rosalyn Dunstan, Royal Preston Hospital**
Utilising volumetric absorptive microsampling (VAMS®) technology to monitor tacrolimus and creatinine concentrations in adult renal transplant patients
- ◆ **Karen Perkins, Royal Lancaster Infirmary**
Comparison of capillary samples versus standard venous sampling methods with a view to use them in underserved populations
- ◆ **Jonathan Fenn, New Cross Hospital, Wolverhampton/Warwick Medical School**
Refining use of sFlt-1/PlGF ratio for pre-eclampsia management by exploring novel biomarker approaches. ■

**We'd love to hear your views.
Keep an eye out for the Membership
satisfaction and improvements survey
coming in April 2023.**

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ACB Membership Awards 2023

Nominations for this year's Awards are invited from Regional Committees, together with a citation of about 500 words, outlining the basis of the nomination.

The Award must be approved by Council at its meeting in May 2023, and it is important that the Regional representative is able to extol the virtues of the nominated individuals.

The three award categories are:

Emeritus Member

Persons who have been Members of the Association for at least ten years and have retired from full-time employment and who have made an exceptional contribution to the objectives of the Association may, on the recommendation of Council and by a majority of at least two-thirds of those voting at a General Meeting, be elected Emeritus Members of the Association.

Fellow of the Association

Persons who have been Members of the Association for at least ten preceding consecutive years and have retired from full-time employment may, on the recommendation of Council and by a majority of at least two-thirds of those voting at a General Meeting, be elected to the category of Fellow of the Association.

The recipients have made a significant contribution to the profession in one or more of the following areas:

- ◆ Continually led and instigated changes to meet the needs of Laboratory Medicine services on behalf of a region or nationally.
- ◆ Developed exceptional educational and/or training facilities for the profession.
- ◆ Led in setting up and developing, over a considerable period of time, a well-respected and valued specialised service that had a major impact either within a region or nationally.
- ◆ Raised the profile of the profession over many years, within the lay or clinical community, either regionally or nationally.

Honorary Member

Persons who have made a distinguished contribution to Laboratory Medicine at international level may, following the recommendation of Council and by a majority of at least two-thirds of those voting at a General Meeting, be elected Honorary Members of the Association.

If you would like to propose someone then contact your ACB Regional Secretary. Proposals must be supported by the Regional Committee and the nomination submitted through the Regional Committee at the Council meeting in May 2023.

The closing date for nominations received by Council is 21 April 2023. ■



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Submissions are open for UKMedLab23 abstracts, awards and prizes

UKMedLab23 is steadily approaching and this year we are returning to the Royal Armouries in Leeds between 12-14 June. This means that our award season is underway! We have recently opened three submission categories that members are encouraged to apply to.

Abstract/poster submissions

Abstract submissions are now open. A successful submitter will be invited to display a poster or give an oral presentation at UKMedLab23.

Your submission will be considered for one of the following awards or prizes, as indicated on your form:

- ◆ **Audit Poster Prize** – for audit abstracts
- ◆ **Clinical Case Prizes** – for clinical cases abstracts
- ◆ **Medal Award** – for abstracts submitted by ACB Members in training towards FRCPATH

Please submit your abstract and select any prizes or awards you wish to enter by 9:00 am, Monday 20 February 2023 (GMT). [Send us your abstract through this online form.](#)

Foundation Award

The Foundation Award is presented to a Member of the Association, normally resident in the UK or Republic of Ireland, who is acknowledged as having made an outstanding contribution to the profession.

Nominees can be proposed by all

Members of the Association. We highly encourage you to champion the peers who have inspired you, as this is a way to celebrate one another's achievements and build a better sector for us all.

The deadline for submitting a Foundation Award nomination is 09:00 am, 28 February 2023 (GMT).

[Send us your Foundation Award nomination here.](#)

Impact Award

We're delighted to see the interest generated by this award, launched in 2022, which saw a large number of members submitting high-quality applications, as well as conference delegates engaging with the lecture delivered by the award recipients. The Impact Award celebrates the improvement of a service in which one or more of our members have participated. It promotes the important work occurring on a daily basis in our profession that has had a positive impact in at least one area of Laboratory Medicine. These can include the patient pathway, health systems and services, the laboratory workforce, environmental sustainability and inclusive healthcare.

Any ACB Member actively working in Laboratory Medicine can self-nominate for the Impact Award, as an individual or a group, by 09:00 am, 31 March 2023 (GMT). [Send us your impact Award submission here.](#) ■

[Read more about the national meeting awards and prizes here, including eligibility criteria and the selection process.](#)



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Members, start making use of the EFLM Academy

From 1 January 2023, Members now have full access to the EFLM Academy.

The top benefits of joining the EFLM Academy, via ACB membership, include:

- ◆ Education and training opportunities, such as the EFLM Syllabus Course, comprising of comprehensive online content, accessible on-demand in your own time.
- ◆ Free online subscription to journals: *Clinical Chemistry and Laboratory Medicine*, *Clinical Chemistry*, *Journal of Applied Laboratory Medicine*, *Critical Reviews in Clinical Laboratory Sciences*, *Clinical Biochemistry and Scandinavian Journal of Clinical and Laboratory Investigation*.
- ◆ Free access to documents from the Clinical Laboratory Standards Institute (CLSI), containing some of the most widely recognised resources for continually improving testing quality, safety and efficiency.
- ◆ Free access to EFLM live webinars and on-demand webinars.
- ◆ Reduced registration fee to EFLM conferences and courses.
- ◆ Eligibility to apply for EFLM travel grants (subordinated to application's criteria of each specific EFLM initiative).

In December, full ACB Members received an email from the EFLM with instructions for how to gain access to the Academy. We encourage you to set up your account, so you can participate in exciting upcoming webinars, such as:

1. **7 February 2023:** Fast and furious – integration of (not only) molecular methods for faster results in the microbiology laboratory.
2. **28 February 2023:** Cerebrospinal fluid biomarkers for neurodegenerative dementias.
3. **7 March 2023:** Diagnosis of Gaucher disease and other lysosomal disorders.
4. **21 March 2023:** Monitoring the performance of a measurement system for its intended clinical use.

All of the above webinars stream at 6:00 pm CET/5:00 pm GMT.

If you have not received, or would like to receive, the EFLM Academy instructions please contact the Membership Manager, Mike Lester at mike@acb.org.uk ■

**Keep an eye out for great opportunities
to join EFLM and IFCC Committees and
Working Groups!**

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. The Royal College of Pathologists (RCPATH) is inviting ACB Members to join this day of lectures and discussions with themes including obesity, managing infections, information management systems and future roles in laboratory medicine.

Tickets are £50 and spaces are limited. [Book your place here.](#)

09.15-09.55 **Registration**

Session 1

Chair: Neil Anderson

09.55-10.00 **Introduction**

Neil Anderson

10.00-10.30 **The life and work of Professor Freddie Flynn**

Vincent Marks

10.30-11.00 **Metabolically healthy obesity is a myth**

Indy Das Gupta

11.00-11.30 **AI in acute kidney injury**

Chris Laing

11.30-11.45 Break

Session 2

Chair: Neil Anderson

11.45-12.15 **Managing infections; antimicrobial resistance, drug monitoring and individualised care**

Rob Shorten

12.15-12.45 **Potential for the laboratory information management system to improve patient care**

Craig Webster

12.45-13.45 Lunch

Session 3

Chair: Katharine Hayden

13.45-14.15 **What does the future hold for Continuing Professional Development?**

Peter Johnston

14.15-14.45 **Future models for Clinical Biochemistry training and development**

Adrian Park

14.45-15.15 **What staff do we need to run clinical laboratories in the future?**

Liz Hughes

15.15-15.45 **Panel discussion**

15.45-16.00 **Closing remarks**

Committee Member Spotlight

Allison Chipchase, ACB Regional Tutor, East of England

I became the ACB Regional Tutor for the East of England in May 2017. The appointment is for five years, but you can be re-elected for an additional five years, if happy to continue in post. As a member of the Southern Region of the ACB, I attend committee meetings three to four times per year, and report on all Trainees' progress, issues and successes. I also attend the Education, Training and Workforce Committee meetings twice a year, where issues concerning all Trainees are discussed, including changes or concerns with the format of the FRCPath exams and/or Independent Assessment of Clinical Competence (IACC). Regional Tutors should have full FRCPath, but both Principal and Consultant Clinical Scientists are encouraged to apply for the role.

The role of Regional Tutor involves supporting Trainees during the Scientist Training Programme (STP); however, I try to support our post-registration Trainees as much as time allows. I am frequently contacted for information and guidance on accessing Clinical Biochemistry training and for general information about the profession. I try to catch up with the trainees in my region as often as I can and make myself accessible via several routes.

A key responsibility of the role is annual appraisal. This applies to STP and for the first year following completion of STP training. The appraisals ensure that trainees are progressing as expected, that they are on-track with OneFile competency completion and have the required placements and rotations planned or completed. It is also an opportunity to review project proposals and planned elective placements.



Most importantly, the appraisal gives each Trainee an opportunity to raise any concerns about their own training, training lab and/or supervision and have the support of the regional tutor to help solve these issues. Appraisals are conducted with another Regional Tutor, external to the region, who can offer objectivity and a fresh perspective on how problems could be resolved. Annual appraisals are not currently held in every region, but are a valuable tool to prepare Trainees for formal assessments e.g. IACC interview and are strongly encouraged.

An additional, but not mandatory, function is in the provision of regional tutorials. As my own lab has two STP and three HSST Trainees, providing tutorials for both STP exam and FRCPath exam preparation was very welcome. The widespread use of Teams meant that these could be offered to all the Trainees in the East of England, opening up our

topic list and encouraging participation from others. We hold these tutorials online, monthly. We often include a journal club, practice exam questions and management scenarios. We've included basic scientific and clinical background knowledge on more specialist analyses not offered at some of our Trainees' labs. We have also had contributions from Consultant staff from other hospitals, happy to offer their expertise in Clinical Biochemistry.

I have found the role of Regional Tutor

to be very rewarding. Not only do you gain a greater knowledge and understanding of the other scientists in your region, and watch their careers develop and progress, but you also see how their labs are organised and function and have the chance to share best practice. It also provides opportunities to contribute to how the profession will develop in the future and ensure there are sufficient numbers of highly trained scientists available to tackle the new challenges in the NHS. ■

EFLM LabX programme

Dan Turnock (on behalf of the EFLM LabX task group)

The EFLM LabX programme was set up as a result of a survey of EFLM member countries in 2016-2018 which identified that there was a need for a more structured way to connect individuals seeking extra or specialist training opportunities outside their own country with specialist laboratories able to offer training placements.

Information on the EFLM LabX programme can be accessed on the website <https://efmlabx.eflm.eu/en> which includes a number of user guides.

Applicants are able to search and apply for placements using a dropdown menu (by country, institution, type of practice, field of diagnostics, period of time, methods, sub-methods)

Institutions are able to register on the site, upload placements opportunities, receive and review applications after signing a "Contract of partnership" with the EFLM.

Overall, the programme helps establish direct links and communications between both providers and applicants. A certificate of completion is provided once the placement is complete and bursaries are

available from the EFLM to support travel and accommodation expenses for those undertaking placements

For those in training or at an early stage of their career, the programme is a great way to gain new skills, experience of specialist laboratory techniques, experience of laboratory medicine in another country and establish new contacts and opportunity for research work. It would potentially be an exciting option for an STP elective placement.

For institutions, joining the programme could give you a way to showcase an area of specialist interest/expertise within your own institution, meet and interact with enthusiastic young scientists from other countries and ultimately help share good practice across Europe!

The programme has of course been affected by the COVID-19 pandemic and so we are now looking to revitalise the programme by attracting new institutions/placements and potential applicants to register on the website.

We hope that you will consider becoming part of this exciting programme. ■

The ACB Mentoring Programme is making an impact

It is great to see members using our new Mentoring Programme to shape their careers.

The programme helps members pursue career growth and development by strategically matching those looking for additional knowledge or advice with suitable mentors in specific areas. It's much more than a networking platform. The specialised platform is equipped with a learning and development toolkit, offering a wide range of materials, such as videos, to guide both parties through the eight-week mentoring interaction. Such tools and steps help ensure that both mentors and mentees follow a systematic track and achieve pre-defined mentoring goals.

The Mentoring Programme officially launched in June 2022 and many mentor-mentee journeys have already taken place.

We reached out to parties who have completed a full mentoring programme and are delighted to share the feedback we received from Rob Shorten and Ijeoma Okoliegbe.

Rob Shorten, ACB mentor

I believe that supporting members to improve themselves and advance their training is a fundamental role of the ACB. When the mentoring scheme was announced, I was immediately interested to see how I could help in a small way.

There were helpful videos on the website explaining the aims of the scheme and detailing helpful tips to ensure that both parties got the most out of the experience. The process to sign up via the website was straightforward – asking me to list my background, job role and what areas that I felt I could offer mentoring in.

Shortly after, I received an email

notification via the portal that Ijeoma had requested a meeting. This included an overview of the 'ask'. Ijeoma and I arranged a Teams call at a mutually convenient time where we discussed the aims, expectations and limitations of the mentoring.

Ijeoma is an experienced laboratory scientist and was working towards STP equivalence via the AHCS, as well as looking beyond this to advancing her career. We established timelines and expectations, including how frequently we would meet.

We worked together to establish a gap analysis of Ijeoma's experience, portfolio composition and viva preparation. We also discussed next steps for Ijeoma's research ambitions. I was able to offer insight and facilitate some networking opportunities.

I'm delighted to say that Ijeoma was successful in her viva and is currently awaiting confirmation of her Clinical Scientist status from HCPC. I found the whole experience fulfilling and would urge other members to give it go!

Ijeoma Okoliegbe, ACB mentee

When the ACB advertised its mentoring scheme, the first and most crucial step for me was to assess if I was happy within my current position and if there were opportunities for change within my career journey.

Looking back, defining my goals and expectations when applying for mentorship ensured that I'd carefully considered what was important to me and was realistic on where I would like to see my career in the short- and long-term. In addition, this initial preparation was significant, as it provided me with insight on seeking out a mentor who would perfectly match my professional goals and

was equipped with the appropriate skillsets for areas I'd earlier identified for career and self-development.

At the first meeting, Rob established what he called 'the ground rules'. This was important, as clear, consistent and well-structured communication was crucial in managing my expectations and ensuring meaningful engagement during the process. In addition, for effective goal setting we quickly agreed on three SMART (Specific, Measurable, Achievable, Relevant and Time-based) short-term goals to pursue during mentoring.

By tracking progress on these goals (non-STP Clinical Scientist equivalence support, research network and personal development), Rob helped me focus during mentoring. I found it extremely helpful to speak to someone who was very experienced and clearly knowledgeable.

I strongly believe the motivation, encouragement and invaluable viva preparations were essential for my successful viva outcome and subsequent

HCPC registration. The mentorship also provided a direct opportunity to develop my research as my mentor provided networks that I have built on. Furthermore, the use of the SMART goals was crucial during the remote mentoring experience as we could seamlessly organise meetings and prioritise on essential tasks.

At the moment, although I have come to the end of the ACB mentoring programme, I am happy to see how much my career has developed. The networks which have been established during these months will no doubt enhance my career in the future.

- ◆ If you are an ACB Member, you can sign up as a mentor, a mentee, or both, depending on your professional needs. To get started, [set up a profile](#) on our bespoke mentorship platform.

If you have any questions or need help setting up your profile, email the Membership Manager, Mike Lester, at mike@acb.org.uk ■

Sudoku

This month's puzzle

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

Solution for December

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

I remember when . . .

by **William Marshall**

I would guess that the most frequently requested endocrine assays are for the assessment of thyroid function, and, like many other assays, these have an interesting history.

The earliest reference that I was able to find (date 1920s) described a method based on the observation that thyroid hormone increased the rate of metamorphosis of common frog (*Rana temporaria*) tadpoles, i.e. the appearance of limb buds or the involution of the tail. I was unable to find whether this principle was ever applied to clinical measurements. There would be several problems in doing so; for example, it would have been necessary to do measurements on several tadpoles to allow for individual variation, it would have been difficult to ensure constant availability of tadpoles, and so on.

Thyroid hormone status is related to basal metabolic rate (BMR), which could be estimated from measurements of oxygen consumption and carbon dioxide production. Bedside apparatus (the first use of 'near patient testing?') was developed for the measurement of BMR but there were problems with standardisation and ensuring that the patient really was in a basal state. There are also non-thyroidal causes of an abnormal BMR. Ideally, for its accurate measurement the patient had to be asleep. One way of ensuring this was to give the patient a sedative but non-anaesthetic dose of phenobarbitone before commencing the measurement. However, there are other causes of an abnormal BMR and its measurement is not practical for routine use.



The first practical measurement of thyroid hormone status was the measurement of protein-bound iodine, based on the fact that thyroid hormones are extensively protein-bound so that the protein-bound fraction was a reasonable approximation to total thyroid hormone (though also including the contribution from other iodothyronines).

Iodine was liberated from binding proteins and thyroid hormones by acid digestion or by heating in air in the presence of alkali (to prevent loss of iodine to the atmosphere). A major disadvantage of this technique was that it failed to allow for abnormal binding protein concentrations.

Iodine uptake tests were developed in an attempt to circumvent the problems of protein-bound hormone measurement. They were based on the idea that the uptake of radioactive iodine in a serum sample would depend on the number of free binding sites on binding proteins. In essence, the procedure involved saturating the free binding sites with radiolabelled triiodothyronine (T3) (used in preference to thyroxine because of its greater affinity for binding sites) and then measuring the unbound T3 by adsorbing it on to resin (hence the alternative name, resin uptake test). The result was reported as the 'free thyroid index' by expressing it in relation to the values found in healthy individuals.

The development of immunoassays for the measurement of thyroxine (T4) and, later, free thyroxine, T3 and free T3 were major advances but still could give rise to errors with abnormalities of binding proteins and the effects of drugs. Arguably the greatest advance in the laboratory

assessment of thyroid function was the development in the 1960s of measurements of thyrotropin (thyroid stimulating hormone, TSH), the plasma concentration of which is inversely related to active thyroid hormone status. Early TSH assays were insufficiently sensitive to reliably distinguish between low but normal values and the suppressed levels characteristic of hyperthyroidism but modern assays do this with relative ease, although distinguishing between low concentrations of T4 and TSH owing to thyroid disease and to hypothalamo-pituitary malfunction remains a theoretical problem (though not often a practical one as 'central' hypothyroidism is uncommon and patients will usually have other features of pituitary disease). And the rare conditions of thyroid hormone resistance can also cause

unexpected TSH results in the face of elevated concentrations of T3 and T4.

In addition to the ability to reliably assess thyroid status in patients with or suspected of having thyroid disease, a hugely important practical consequence of the development of current TSH assays is in relation to the screening programme for congenital hypothyroidism. When first introduced, this relied on T4 measurements in liquid blood but is now based on TSH measurements on dried blood spots. This allows a short turnaround time and a high sample throughput and has improved both the accuracy and the efficiency of the programme, without doubt to the great benefit of individuals so detected.

I thank Dr Ruth Ayling for her most helpful comments on an early draft of this article. ■

Save the date – ACB Residential Training Course

17-19 July 2023

Durham University, Durham, UK

Organised by: Hazel Borthwick and Tim Lang

The ACB training course makes a welcome return following the COVID-19 pandemic to the picturesque city of Durham. The programme has been developed to support the needs of those preparing to take their FRCPATH examinations, with an opportunity of a mock OSPE.

Trainees will learn about a variety of clinical and analytical topics from regional experts, as well as those related to quality, accreditation and service development.

[Book your spot on the Residential Training Course here.](#) ■

Publication Deadlines

To guarantee publication, please submit your article by the 1st of the preceding month (i.e. 1st March for April 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. ■

LAB TESTS ONLINE^{UK}

Your Trusted Guide

Peer Reviewed • Non-Commercial • Patient Centred

Produced by  The Association for
Clinical Biochemistry &
Laboratory Medicine

With support from

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



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 are always on the lookout for Lab Tests Online Champions to promote the site and get the message to patients at the coal face, in places like GP surgeries. You will have plenty of resources to use in promoting the site and it is a great opportunity to work with local care providers and get their angle on lab services. If this is something you might be interested in, please contact us at the address below. We are also keen to contact anyone who would like to help promote LTO at events, either locally or nationally. Besides knowing you're helping patients understand their blood test results better, it's also a great chance to meet and chat with users of Pathology services and find out what they think about what we do. This gives you a great insight in how the lab is perceived and also is a valuable source of CPD! Again, contact us at the address below if you're interested.

Changes are a'coming!

There is a lot of work going on behind the scenes about how LTO-UK is going to go forward and flourish in the future, so keep your eyes firmly on this space for announcements to come!

Meet the Lab Tests Online-UK Board

Ben Nicholson, ACB Director of Finance

Ben went to university in Leeds (Leeds Metropolitan University, now Leeds Beckett), achieving a BSc in Biomedical Sciences in 2013. After a few roles in the customer service industry, he completed the MSc in Clinical Biochemistry at Manchester University (2015) and acquired a job as a Medical Laboratory Assistant at Stepping Hill Hospital. After a year working in an NHS laboratory, and shadowing the Consultant Clinical Scientist, he applied for the STP and was successful, being placed at Nottingham University



Hospital Trust. Once qualified, Ben began his dream job in Paediatric Biochemistry at Sheffield Children's NHS Foundation Trust as a Senior Clinical Scientist in April 2020. Ben is currently a 2nd year HSST Trainee undergoing training in Metabolic Chemistry, Tissue Culturing and Newborn Screening protocols. He is also the ACB Trainee Representative for Yorkshire and newly appointed ACB Director of Finance.

Ben enjoys music events, theatre shows and dinner with friends. He has recently retired from an LGBT+ Inclusive Rugby Team (Sheffield Vulcans), but has now picked up his childhood hobby of tennis again. His new passion is to attempt to travel as much as possible and decorate his newly bought first home in Sheffield.

Lab Tests Online (LTO) is a wonderful opportunity for Clinical Biochemists to shape the way in which laboratory testing is presented to the public, allowing informative resources to support patients understand their results and encourage greater involvement by patients in their care. Ben's hope is that LTO also becomes a useful new tool for both laboratory staff and clinicians in the education of patients, but also the public (in schools and in public engagement opportunities) and improves many patient-centred care pathways through shared resources.

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.

Email: labetstsonlineuk@acb.org.uk Website: labetstsonline.org.uk Follow us



Deacon's Challenge Revisited

No 24 - Answer

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

Number of true positives, i.e. positive results in patients with disease = TP = 64
 Number of true negatives, i.e. negative results in patients without disease = TN = ?
 Number of false positives, i.e. positive results in patients without disease = FP = 10
 Number of false negatives, i.e. negative results in patients with disease = FN = ?

In order to proceed, first determine the missing values for TN and FN as follows:

Total number in population tested, (TP + FP + TN + FN) = n = 200

Number of patients with disease, (TP + FN) = 76

Substitute TP = 64 and solve for FN:

$$64 + FN = 76, \text{ therefore } FN = 76 - 64 = 12$$

Number of patients without disease (TN + FP) = n - (TP + FN)

Substitute FP = 10, (TP + FN) = 76 and n = 200, then solve for TN:

$$TN + 10 = 200 - 76 \text{ therefore } TN = 200 - 76 - 10 = 114$$

The sensitivity of a test is its positivity, i.e. the proportion of true positives obtained for patients with disease:

$$\text{Sensitivity (\%)} = \frac{TP \times 100}{TP + FN} = \frac{64 \times 100}{76} = 84\%$$

The specificity of a test is its negativity, i.e. the proportion of true negatives in patients without disease:

$$\text{Specificity (\%)} = \frac{\text{TN} \times 100}{\text{TN} + \text{FP}} = \frac{114 \times 100}{114 + 10} = 92\%$$

Note that the terms sensitivity and specificity relate to single populations with and without disease respectively and are therefore unaffected by prevalence of disease.

The predictive value of a test describes the reliability of a positive or negative result in the population being tested, which will contain patients both with and without disease, and so will be affected by prevalence of disease.

The predictive value of a positive result, PV(+), is the proportion of all positive results which are true positives (i.e. will include false positives, the number of which will depend on prevalence of disease):

$$\text{PV(+)} \% = \frac{\text{TP} \times 100}{\text{TP} + \text{FP}} = \frac{64 \times 100}{64 + 10} = 86\%$$

This means that for every 100 positive results in this population, 14 will be from patients without disease. Although not asked for in this question, the predictive value of a negative result can be similarly calculated:

$$\text{PV(-)} = \frac{\text{TN} \times 100}{\text{TN} + \text{FN}} = \frac{114 \times 100}{114 + 12} = 90\%$$

This means that for every 100 negative results in this population, 10 will be from patients with disease. ■

Question 25

A laboratory performs sweat tests by collecting sweat for 20 minutes using 5.5 cm filter paper discs. In order to comply with the Sweat Test Guidelines that the sweat secretion rate should not be less than 1 g/m²/min, what is the minimum weight of sweat that should be collected?

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 34 from December's ACB News

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.

Answers

True – A. RSV can spread rapidly through schools and daycare centers especially in late fall through early spring when there is typically yearly epidemics of the virus and in a non-pandemic environment, almost 97% of children under the age of 2 have been infected by RSV. **B.** A barking or wheezing cough can be one of the first signs of a more serious illness. In these instances, the virus has spread to the lower respiratory tract, causing inflammation of the small airways entering the lungs. This can lead to pneumonia or bronchiolitis. **C.** Croup is most commonly caused by a virus. It is sometimes, but rarely, caused by bacteria, allergies, or reflux from the stomach. Viruses that are known to cause croup are: Parainfluenza virus, Respiratory syncytial virus, Influenza virus, Adenovirus and Enteroviruses.

False – D. Can be referred to as a human orthopneumovirus. It is a negative-sense, single-stranded RNA virus. Its name is derived from the large cells known as syncytia that form when infected cells fuse. **E.** Antibiotic therapy is not appropriate for treatment of RSV-related bronchiolitis or viral pneumonia. Antibiotics target bacterial pathogens, not viral pathogens such as RSV. Ribavirin is an example of an antiviral medication currently licensed for the treatment of RSV in children.

Question 35

The following are true or false statements about group A (beta-hemolytic) *Streptococci* (GAS):

- A. *Streptococcus pyogenes* are non-motile, non-sporing gram-positive, aerotolerant cocci that tend to link in chains.
- B. GAS is a rare cause of acute bacterial pharyngitis.
- C. The definition of invasive group A *Streptococci* (iGAS) is an individual who has an iGAS infection, which is defined as the detection of group A streptococcus (GAS), by culture or accredited molecular methods (such as PCR), from a normally sterile body site.
- D. Invasive group A *streptococcus* (iGAS) infection is not a statutorily notifiable disease in England, Scotland and Wales.
- E. Currently, *emm* typing remains the molecular gold standard for typing GAS and more than 200 *emm* types have been described globally.
- E. Chickenpox and Influenza are both considered risks factor for development of iGAS infection.

The answer to Question 35 will appear in the next issue of ACB News – enjoy! ■

Implementing environmental sustainability in clinical laboratories

Callum Goolden, Trainee Clinical Scientist (Microbiology) and ACB Green Champion

Climate change is a monumental threat to human health and prosperity in the 21st century. Healthcare as an industry is inherently polluting, with the health sectors of 36 major countries responsible for 4.4% of global annual CO₂ emissions.¹ When I first entered a pathology lab as a fresh-faced undergraduate placement student, I was immediately shocked by the quantities of unrecyclable waste produced in the processing of patient samples, the high energy consumption associated with large, automated equipment and the volume of environmentally hazardous solvents and reagents in routine use. In fact, research has shown that laboratories directly account for 2% of the total global use of single-use plastics – a staggering figure.

I have often found myself asking “what, if anything can we do about this?” and “how can we, as laboratory professionals, improve the environmental sustainability of our service?”. Certain barriers exist when looking to implement sustainable changes into laboratory practice, for example, laboratory sustainability is often far down the priority list for labs facing constricted budgets, personnel shortages and ever-increasing output demands. Implementation of change requires motivated leadership and strong advocacy by all grades of staff. Organisational support, particularly with regards to finances, is also vital to support changes in the delivery of a service. In addition, there is often an inexorable resistance to change which



The Microbiology Greens (from left to right): Eleanor Montague-Lowe (Senior Biomedical Scientist), Michelle Borthwick (Senior Biomedical Scientist), Dawn Dixon (Head Biomedical Scientist), Callum Goolden (Trainee Clinical Scientist), Robert Shorten (Consultant Clinical Scientist) – not pictured, Vari Welford (Specialist Biomedical Scientist)

hinders efforts to move away from old, environmentally detrimental practices to new “green” practices, with no evidence of inferiority, only the collective clinging to familiarity.

At Lancashire Teaching Hospitals Department of Microbiology, we have recently embarked on our journey towards a more sustainably focussed laboratory service. I thought it would be prudent to share our early experiences as a guide to other laboratories around the country looking to embed sustainable practice into their agenda.



Formation of a sustainability group and initial actions

The “Microbiology Greens” – a sustainability group formed by laboratory and clinical staff with an interest in sustainable laboratory practice at Lancashire Teaching Hospitals Department of Microbiology.

The first step we took as a department was to form a sustainability group. At present, the “Microbiology Greens” consists of a Consultant Clinical Scientist, Head Biomedical Scientist (BMS), two Senior BMS, one Trainee Clinical Scientist and a specialist BMS. Having multi-layered representation is of utmost importance when looking to drive engagement within the whole team. I hope that going forward we will increase representation to include associate practitioners, medical laboratory assistants and administrators.

One of the drivers leading to the formation of the group was the keenness to be a pilot site for the Clinical Laboratory Efficiency Assessment Framework (LEAF). LEAF is an initiative born out of University College London (UCL) and initially focussed on research laboratories before looking to expand the programme to clinical laboratories. The framework consists of actions relating to waste, people, travel, energy, water and procurement. Each action is supported by

a rationale as well as evidenced guidance to help implement it. Completion of any of the three graded programmes (Bronze, Silver or Gold) results in accreditation by LEAF in labs and the presentation of certification.

We started to assess our laboratory against LEAF by conducting a “laboratory walkaround” where we assessed and discussed our current performance and identified actions that we could implement or investigate to meet the criteria outlined in LEAF (Bronze). Some actions are instantly attainable or already covered by UKAS accredited clinical laboratories, for example, legible labelling of clinical and non-clinical samples and chemical containers. Other actions were also already complete due to strict budgetary and storage space constraints – these included the purchasing of appropriate volumes of chemical reagents and suitable stock rotation. Some actions required only simple changes or clarification of standard procedure. In terms of waste disposal, our laboratory is already equipped with appropriate waste bins for clinical waste, sharps, domestic waste, cardboard and clean plastics. Only clarification from the hospital waste manager of the fate of cardboard and recyclable plastic and the addition of a new waste stream for

compostable food waste – we are considering a small benchtop kit and/or on-site wormery – were required to hit this action.

As a group, we have agreed to conduct regular meetings and to distribute actions evenly between us to drive our progression towards certification. We have also decided to erect a noticeboard on the main Microbiology corridor to provide a space to publicise our progress/achievements and to provide a forum for increased team engagement and to seek suggestions.

Ongoing work and future aims

Going forward, we would like to expand the scope of the group to include the whole of Pathology. We hope to further drive engagement within our teams, continue to push for LEAF Bronze certification and to embed sustainability into everything we do, be that procedural via consideration in the formulation or updating of laboratory standard operating procedures or through instilling the importance of laboratory sustainability into our team.

No change can happen overnight and implementing a sustainable laboratory agenda may be seen as chipping away at a mountain – but chipping away we are and we will continue to do so!

Other useful resources for green fingered laboratory teams

For those of you who are looking to start your own sustainable laboratory journey, the following resources are an excellent place to start:

- ◆ [LEAF in labs](#)
- ◆ [MyGreenLab](#)
- ◆ [Centre for Sustainable Healthcare – in particular, the clinical labs sustainability network \(susnet\)](#)

References

1. Malik A, Lenzen M, McAlister S, McGain F. The carbon footprint of Australian health care. *The Lancet Planetary Health*. 2018; 2(1):e27-e35.
2. Urbina MA, Watts AJR, Reardon EE. Labs should cut plastic waste too. *Nature*. 2015; 528(7583): 479-. ■



Find out more via [@LEAFinLabs](#) or online at: www.ucl.ac.uk/sustainable/leaf/take-part-leaf

UKMedLab22 Biochemistry Training Day

Rebecca Jones, Senior Clinical Scientist, Royal Shrewsbury Hospital

Dreaded rail strikes were announced to be held on the opening day of the UKMedLab22 conference. The ACB decided to move the Training Day to later in the week, to minimise travel disruption for attendees and speakers, but this change at short notice inevitably impacted upon others.

To support those impacted by the change in date, the ACB offered fast-tracked Educational Bursaries, which were welcomed by recipients, myself included. With all obstacles aside (distance, strikes, rota cover, childcare etc), I was delighted to arrive uneventfully at the Royal College of Pathologists' HQ and reconnect with so many familiar faces.

The lack of face-to-face meetings due to the pandemic has highlighted the importance of this national scientific meeting, as well as regional ones, to enable networking, connection, progress (e.g. towards becoming greener labs), learning and peer support.

During the Biochemistry Training Day, Katy Heaney and her dedicated team

reminded us of the importance of Point-of-Care (POC). They showcased new devices and reminded us about the importance of the existing ones and how POC is critical now more than ever as the NHS moves to fulfilling targets to provide virtual wards.

The afternoon session was held by the incredible duo from Liverpool, Anna Milan and Andrew Davidson, who have been instrumental to many of us completing the MSc and gaining HCPC registration, and were now educating us on the fundamental aspects of the FRCPath OSPE examinations.

They put together a brilliant OSPE overview followed by a mock examination, which showcased the standard of knowledge expected to pass these examinations. It was great to witness such a vibrant and dynamic cohort of pre- and post-registration Trainees who shared a passion for learning and continued professional and self-development.

I look forward to the next UKMedLab in the not-so-distant future. ■



Demystifying the complexities of metabolic bone disease

ACB Trent, Northern & Yorkshire Scientific event

Johnathan Ho, Senior Biochemist, Nottingham University Hospitals Trust

On Thursday 8 December 2022, colleagues from across the country converged upon the University of Nottingham's Jubilee Campus Conference Centre to unravel the myriad complexities of metabolic bone disease. After delegates, who had weathered the Coldest Week of the Year™, were registered and had filled up on much needed hot drinks, this face-to-face event (the first for the region since COVID-19) was opened by the event chair, Dr Donna Fullerton (Consultant Clinical Scientist, NUH) who introduced our first speaker, Dr Peter Prinsloo (Consultant Chemical Pathologist, NUH).

As befitting the opening act of a metabolic bone disease event, Dr Prinsloo gave a comprehensive re-introduction to the two most important ions in bone assessment: calcium and phosphate. This covered their respective homeostatic mechanisms and common disturbances and their clinical presentations. The importance of vitamin D, PTH, FGF23 and klotho to maintaining appropriate levels of each was elegantly explained, as were their mechanisms of action and target organs. Yours truly took particular note of the need for exposure to UVB rays for the creation of vitamin D in the skin and will be justifying all my future "winter sun" holiday plans on this basis. Enlightening discussions were had regarding when to treat low phosphate and how to avoid reflex loss of phosphate

by co-administering vitamin D.

Following on from this presentation of the classic bone profile constituents, Dr Katharine Whitehurst (Registrar in Chemical Pathology, NUH) took us to the world of bone turnover markers. This lecture covered the processes underlying bone resorption and formation, and how they are balanced in health, before moving to the clinical presentation and aetiology of metabolic bone disease. I particularly learned a lot about the differences between bone quality and bone quantity, how they are measured and how they are integral to the manifestation of different bone diseases. Dr Whitehurst then gave a thorough review of the major biochemical markers of bone turnover, CTX and P1NP, and how they are the settled measurands for bone resorption and formation, respectively. An important explanation of two distinct methods for P1NP quantification and how CKD can affect the circulating levels of either analyte followed; information that will be of particular importance when advising clinicians requesting these tests and making sure the appropriate referral laboratories are contacted.

Dr Prinsloo then treated the audience to an encore, this time taking us through the topic of hypophosphataemic bone disease. Covering phosphopaenic rickets, osteomalacia and X-linked hypophosphataemia, the differences in

pathology and treatment were revealed and explained, including newer monoclonal antibody treatments such as the FGF23 inhibitor burosumab. Dr Prinsloo also provided a much appreciated public service announcement regarding tumour-induced osteomalacia, when to suspect it and how to investigate further.

No discussion of bone disease is complete without proper attention paid to PTH and Dr Samir Elgerray (Registrar in Metabolic Medicine, NUH) gave us our first talk on this subject, which covered the mechanism of PTH action and hypoparathyroidism. Following discussion of the clinical signs and symptoms, we dove into the primary and secondary causes of hypoparathyroidism: an extensive list that includes iatrogenic, electrolyte disturbances, genetics and autoimmune conditions. It is certainly a topic of sufficient breadth and depth to be a favourite of Royal College examiners – so I appreciated the much needed revision opportunity! As a newly-minted Clinical Scientist, getting the medical perspective on treatment approach and target calcium levels in these conditions was incredibly insightful for my practice.

Our next three speakers offered us entirely different perspectives on bone disease. Dr Susan Snape (Consultant in Microbiology and Infectious Diseases, NUH) covered the topic of infections in bone and joints. With initial focus on the causes and signs of native joint infections, Dr Snape explained the routes of infection, the telltale signs and some of the potential culprits (short answer: there are many and they change with patient age). I was fascinated to learn how CRP and procalcitonin could be paired to provide a guide to whether a bacterial infection was present or not. Dr Snape then covered the risks of infection in prosthetic joints and fracture sites. This was a fascinating journey in the formation of biofilms,

how Microbiology assist in identification and management of these infections and the challenges in defining what are true and false positives.

After time to digest the plethora of knowledge provided in the morning, as well as the buffet put on by our event hosts, we were given a masterclass in radiological assessment of bone disease by Dr Yuriy Arlachov (MSK Radiology Consultant, NUH). Given the importance of radiology in assessment of bone, this talk really showed the wide array of techniques available and required in guiding medical management of these patients. This covered many of the diseases discussed by the previous speakers, identifying the unique traits on the scan that can act as telltale signs. As a biochemist, it was refreshing to learn about the other diagnostic techniques and how they are used in patient diagnosis and monitoring.

We were then given a surgical perspective on hyperparathyroidism, one of the most common causes of raised calcium levels. Mr Ioannis Christakis (Consultant Endocrine Surgeon, NUH) gave an overview of parathyroid function, hyperparathyroidism, the most common causes, presentations and investigations required prior to recommending surgery. Mr Christakis gave an impassioned talk regarding ensuring the highest possible success rate of parathyroidectomy and the role biochemistry plays in supporting this in the form of intra-operative PTH. It was great to see first-hand examples of where biochemistry has a powerful effect on a clinical procedure (in determining when to complete the surgery).

Focus then turned to one of the most common bone disorders in the UK – Paget's disease. Dr Hrushikesh Divyateja (Consultant Chemical Pathologist, NUH) took us through the signs and most common routes of diagnosis, such as incidental radiological findings or elevated

alkaline phosphatase without evidence of liver involvement. Given that the UK has the highest prevalence globally, we are likely to encounter these patients throughout our careers and I was very grateful for the in-depth explanation of biochemical presentations and referral tests recommended, as well as the opportunity for increased understanding of the non-laboratory investigations involved.

A journey through the many secondary causes of osteoporosis was next on the agenda, led by Dr Kamalakkannan Chokkalingam (Consultant Endocrinologist, NUH). This gave a useful insight into some of the under-appreciated causes of bone disease, such as anorexia nervosa, cystic fibrosis and coeliac disease. There is tremendous value added to patient care in recognising that these diseases may cause bone abnormalities and treating the disease as opposed to subsequent bone dysfunction. This was demonstrated with an interesting clinical case, where a surgically-induced fall in androgens had caused a reduction in bone density and the appropriate response was not direct treatment but earlier HRT.

Our final speaker of the event was Dr Simon Roe (Consultant Nephrologist, NUH) who provided a lecture on another major underlying cause of bone disease: chronic kidney disease (CKD). Dr Roe covered some of the recent changes in fundamental understanding of the disorder, CKD-Mineral and Bone Disorder

(CKD-MBD), to a phosphate-centric aetiology involving FGF23. It was fascinating to see how a long-standing condition could still be subject to paradigm shifts and the impact this has had on approaches to patient management and monitoring at each of the stages of CKD. The nature of CKD-MBD was also discussed, with different patient populations susceptible to different complications, such as coronary artery calcification in paediatric dialysis patients. Personally, I benefitted from the breakdown of the four major biomarkers of CKD-MBD (calcium, phosphate, vitamin D and PTH), when to use them, what treatment approaches to take and target levels for monitoring patient responses.

As one of the first face-to-face regional meetings since the pandemic, this was a marvellous opportunity to reconnect with colleagues, both within the biochemistry profession and outside of it. As we move forward towards a less restricted time, I am grateful that such events are returning as they provide a dedicated forum for continuous professional development, networking and exchanging of ideas. It was also wonderful to see the perspectives of so many of our clinical colleagues and make the connections that enable so much of the innovation that drives better patient care. I certainly will be on the lookout for the next regional meeting when it is announced! ■

ACB News Crossword

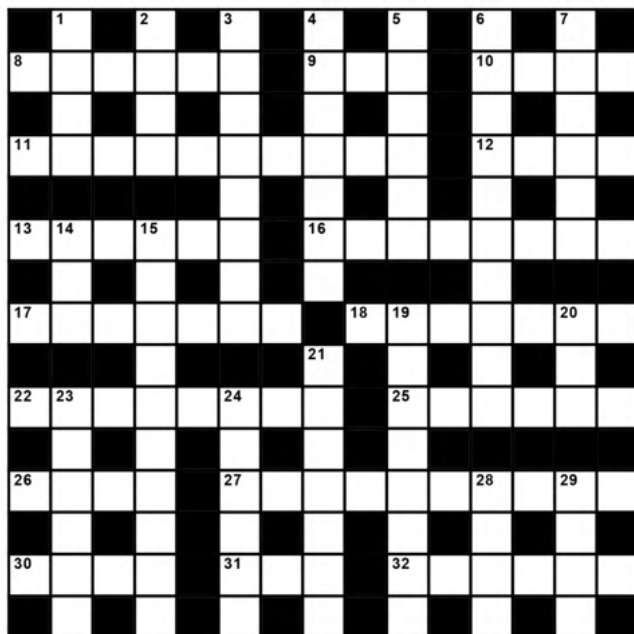
Set by Rugosa

Across

- 8 Take into account complex particle Faraday described (6)
 9 Low-flying bird of prey? (3)
 10 Possibly one's central feature (4)
 11 Employer is upset how chemical union can increase size (10)
 12 Consecutive pieces from a male voice choir resound (4)
 13 Designer of lab equipment of long-standing rebuilt burnt sienna train shed (6)
 16 Element of inactive physical state induces resting midday (5,3)
 17 A neatly modified component we determine (7)
 18 Description of the problem to solve first? (7)
 22 Wide range of new computers with nothing omitted (8)
 25 Plunder becomes unfit for use (6)
 26 Bit demoralising, this kind of examination (4)
 27 Hormone treatment: all but the first result become non-critical (10)
 30 Secure a good rate (4)
 31 Account closing profit performance (3)
 32 Torpid state after revising Proust (6)

Down

- 1 Hebrew greeting return of manuscript about 'Circle of Light' (4)
 2 Certainty – no trace could be so small (4)
 3 Unorthodox entertainment not meant for wide communication complex (8)
 4 GI problem, initial consultation often late – ignoring transient intermittent symptoms (7)
 5 Gene variant in parallel evolution (6)
 6 Has energy lacking from inert goitre, gets rash in skin folds (10)
 7 Uncertain pharmacists at last reject script for a common medical condition (6)
 14 Current alternate for pot (3)
 15 Catalyse with lithium to synthesise a major component of a widely used drug (10)
 19 Coordinate basics as one (8)
 20 Sun cream? (3)
 21 Tall bird delayed for take off (7)
 23 Patrol performance can entrance (6)
 24 Terminal examination is dropped from recitals (6)
 28 Not for sale – flavoursome scrambled egg (4)
 29 Kind of club forming part of the social environment (4)



Solution for December's Crossword

A	U	R	I	C	L	E	L	A	C	T	A	T	E
I	O	H	L	Y	O	N	E	L					
M	A	G	N	E	S	I	U	M	N	U	D	G	E
L	U	M	C	P	T	R	M						
E	M	E	R	I	T	I	H	O	R	M	O	N	E
S	M	A	R	T	S	T	O	G	N				
S	M	A	R	T	I	N	S	O	L	V	E	N	T
	B	N	Y	N									
O	E	S	T	R	O	G	E	N	B	A	S	I	C
S	T	I	T	A									A
M	E	I	O	S	I	S	H	A	L	O	G	E	N
O	N	O	T	E	A	E	D						
T	R	E	A	T	A	N	T	E	N	A	T	A	L
I	N	T	T	I	C	I	E						
C	A	T	H	O	D	E	C	R	E	A	T	E	S

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