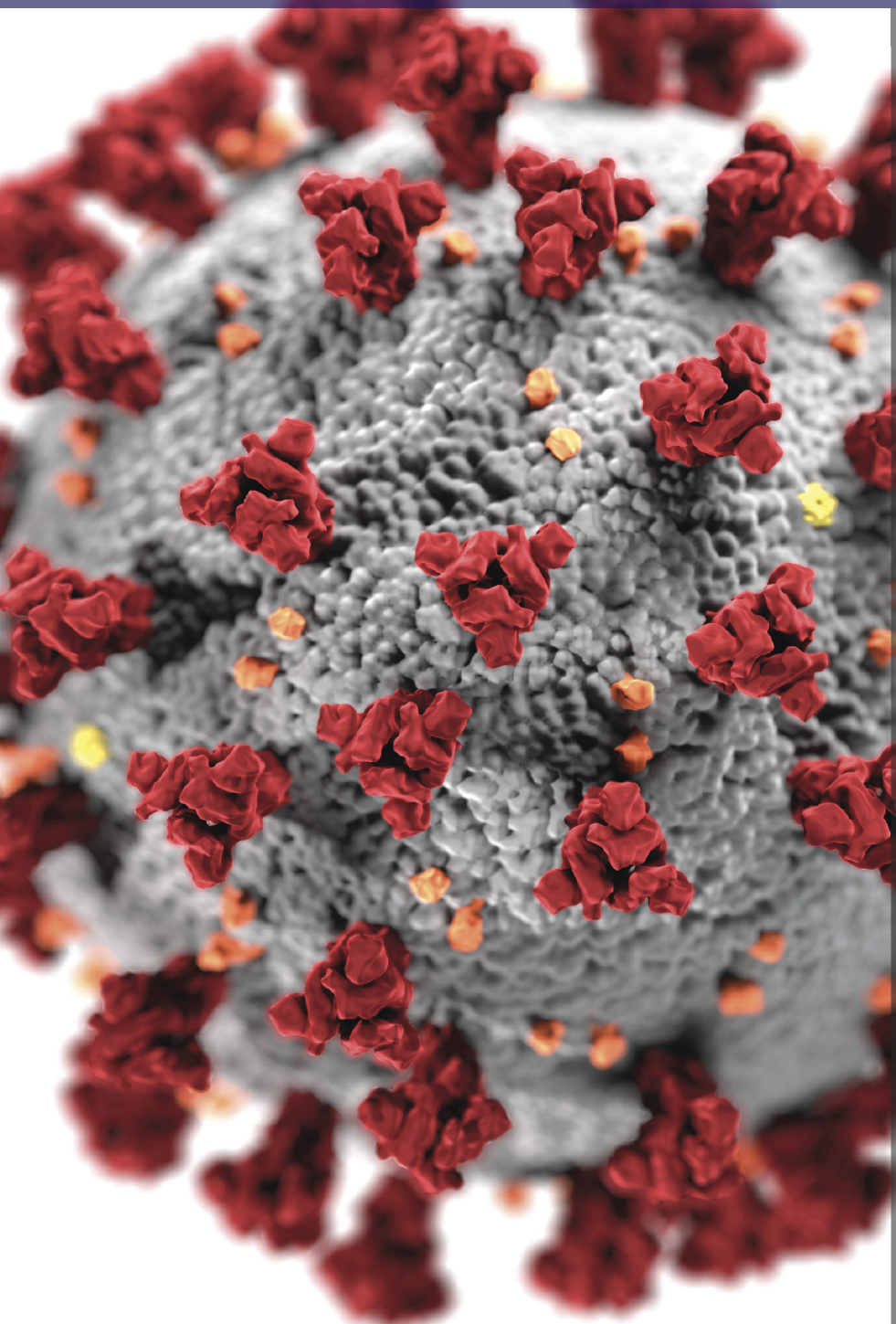
ACB News

The Association for Clinical Biochemistry & Laboratory Medicine | Issue 667 | October 2020

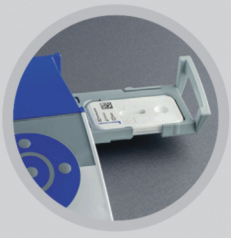


In this issue

Find out more at www.calprotectin.co.uk

Pathology Services Consolidation - Calprotectin

BÜHLMANN Calprotectin assays are standardised across the range. This enables consolidation of technologies, without impacting results or cut-off values, to unite hub and spoke services.



- **BÜHLMANN fCAL® turbo** runs on main stream analysers for a simplified workflow and rapid results to cope with increased volumes in the hub setting
- **CALEX® sample extraction** is leak proof and stable, enabling preparation in the 'spoke' setting and testing in the 'hub' to spread the resource burden
- **Quantum Blue® fCAL** enables rapid testing in 'spoke' locations for acute patients:
  - Correlates with other BÜHLMANN calprotectin assays
  - Results in ~15 minutes
  - Individually sealed tests, no batching required

BÜHLMANN

Supplied by

alpha laboratories
supplying quality to science

Tel: 02380 483000
Email: digestivedx@alphalabs.co.uk
Web: www.alphalabs.co.uk

About ACB News

The Editor is responsible for the final content; advertisers are responsible for the content of adverts. Views expressed are not necessarily those of the ACB.

Lead Editors

Dr Gina Frederick
Pathology Laboratory
Royal Derby Hospital
Email: gina.frederick1@nhs.net

Mr Ian Hanning
Retired
Formerly Department of Clinical Chemistry
Hull Royal Infirmary
Email: editor.acbnews@acb.org.uk

Associate Editors

Mrs Sophie Barnes
Department of Clinical Biochemistry
Charing Cross Hospital
Email: sophiebarnes@nhs.net

Mrs Nicola Merrett
Department of Laboratory Medicine
University Hospital Southampton NHS
Foundation Trust
Email: nicola.merrett@uhs.nhs.uk

Dr Christopher Pitt
Department of Biochemistry
NHS Ayrshire & Arran
Email: christopher.pitt@aapct.scot.nhs.uk

Dr Derren Ready
National Infection Service
Public Health England
Email: derren.ready@phe.gov.uk

Situations Vacant Advertising
Please contact the ACB Office:
Tel: 0207-403-8001 Fax: 0207-403-8006
Email: admin@acb.org.uk

Display Advertising & Inserts
PRC Associates Ltd
1st Floor Offices
115 Roebuck Road
Chessington
Surrey KT9 1JZ
Tel: 0208-337-3749 Fax: 0208-337-7346
Email: mail@prcassoc.co.uk

ACB Administrative Office
Association for Clinical Biochemistry
& Laboratory Medicine
130-132 Tooley Street
London SE1 2TU
Tel: 0207-403-8001
Fax: 0207-403-8006
Email: admin@acb.org.uk

ACB President
Professor Neil Anderson
Tel: 024-7696-5397
Email: president@acb.org.uk
Twitter: @ACBPresident

ACB CEO
Jane Pritchard
Email: jane@acb.org.uk

ACB Home Page
http://www.acb.org.uk

ISSN 1461 0337

Front cover: Coronavirus

ACB News

The bi-monthly magazine for clinical science

Issue 667 • October 2020

The Association for
Clinical Biochemistry & Laboratory Medicine

Better Science, Better Testing, Better Care

President's Message – October 2020

When I began my term as President of the ACB I committed to support the organisation to get fit for the future. As a first step we surveyed the members and consulted widely on your requirements.

Taking that feedback on board over the past year we've been making a number of changes behind the scenes to improve the service to members and this month we will see one our most ambitious projects come to fruition.

"... we've been making a number of changes behind the scenes to improve the service to members ..."

Work has been ongoing right through the COVID-19 pandemic on the development of the ACB digital platform and, as you read this we are almost ready to go live. This is the culmination of months of hard work by both officers and the staff team and we hope the simple clean design and improved functionality will be welcomed by members.

Saying that, we know it won't be perfect right out of the box and we are really keen to hear your views and feedback. You will be prompted to do so when you visit the site.

You will now be able to manage your own membership account, event bookings, subscription payments and log and monitor your CPD credits. You'll be able to personalise your experience by pre-selecting areas of interest and accessing content relevant to that interest. We have the flexibility to add more services and features in the future including video content, abstract submissions, virtual poster competitions and conference bookings to name a few. This is as a continuous process of improvement rather than the finished product and we hope you will work with us by engaging with it to enrich the content and make it a really useful tool to promote our work and connect our community.

When we are live please visit **www.acb.org.uk** and let us know what you think. ■

News from the ACB HQ

As you will see from the President's update much of our time has been taken up with developing ACB's new digital platform in recent weeks and we are delighted that this work is close to launch.

In other news our events activity, albeit virtual, is starting to pick up again and we are working with Committees and Regions to test out new ideas for our workshops and meetings. As I am sure you are all finding, a whole day meeting on Teams or Zoom is very different from meeting in person. So, we are finding ways to deliver the content in smaller packages and make it as interactive as possible. ACB Scotland is currently piloting a series of one hour lunch time sessions and the Microbiology Professional Committee has designed a half-day virtual training workshop.

Many people are asking about Focus and FiLM next year and, following an overwhelming member response to our survey, we will be delivering both events in a virtual format in 2021. Dates and further details will follow soon and we hope to be back at the ICC Belfast in 2022. Huge thanks must go to the Local Organising Committees for offering to adapt the content planned for 2021 to a virtual format.

The ACB Office in Tooley Street remains closed with the exception of myself and the occasional team member as the remainder of the staff team continue to work remotely.

We continue to respond to enquiries from the press and we were delighted that Dr Alison Whitelegg featured in *The Sunday Times*. Testing is moving up the news agenda again so we have invested in media training for the President and the Chair of the Microbiology Professional Committee (see interview on pages 16-18) to ensure that we continue to represent our Members' interests in seeing science and the role of Clinical Scientists accurately reported.

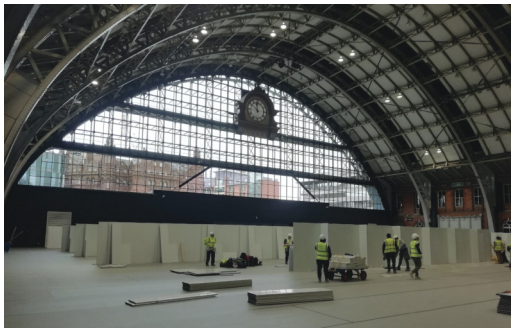
As we go into the Autumn we are finalising our plans for 2021 and looking further forward with a five year roadmap which will raise our profile and expand our reach and influence. I look forward to updating you in the next *ACB News.*

Jane Pritchard

Rome wasn't built in a day . . . but we weren't on that job

Gilbert Wieringa, Point of Care Testing Lead, NHS Nightingale North West; and Professor Tony Fisher, Department of Medical Physics & Clinical Engineering, Royal Liverpool University NHS Trust

It's a sight that none of us could have imagined when we started on 30th March: a 648 bed hospital built in 12 days under the arches of the Manchester Central Convention Complex. The central hall, known to many as G-Mex, is more typically used for election counts, Christmas parties and industry exhibitions including our own Focus conferences in 1999 and 2003. Without a design, only an intent, NHS leaders, the armed forces and contractors worked round the clock to have the first 36 beds ready by Easter Sunday. The project thrived on respect, trust and teamwork in which Healthcare Scientists played an integral and key part. Clinical engineers guided equipment procurement, assessment, installation, acceptance testing and maintenance, anatomical technicians designed and managed a temporary mortuary, respiratory physiologists helped design the care pathways for patients requiring oxygen and were on standby with front line patient support. For laboratory medicine the 10-day challenge was to determine whether the service should be lab-in-a-bag, lab-in-the-box, or lab-from-the-lab.



What to do?

In the North West region, modelling suggested that regional intensive care bed capacity was unlikely to be exceeded. Hence the Nightingale was designed to provide additional "step-down" capacity from Regional Acute Trusts, and provide multidisciplinary clinical care, oxygen therapy and, if necessary, continuous positive airway pressure support for patients recovering from COVID-19. It was forecast that, by providing step-down capacity, the Nightingale North-West could decompress critical care units and improve patient flow in acute hospital trusts.

Given the timescales and prospective patient population Point of Care Testing with central laboratory support appeared the best option. The proposal was approved on 2nd April. A procurement process started on 3rd April amounted to Abbott Alinity analysers being pulled off the shelf and distributed across the wards by Good Friday, 7 days later. These provided the front line urea/electrolytes/creatinine, blood gases and troponin-I investigations. An initial purchase of 10 glucometers

turned out to be the right number despite meters and test strips performing regular disappearing acts. From a call to arms to the North West Healthcare Scientists network, 7 clinical engineers/informatics STPs from Liverpool and one Histology BMS from Salford stepped forward to don PPE and venture on to the wards to train medical/nursing staff, support QA, technology maintenance, troubleshooting, SOP preparation, conduct of audits and risk assessments. The full range of laboratory investigations and specialist tests were provided from the Manchester Royal Infirmary (MRI) laboratories, including COVID-19 swab testing with sample transport being provided by Transport for Greater Manchester. Despite some initial problems, the on-site mortuary was constructed just in time with a 12-month licence from the Human Tissue Authority. In one of the tightest races against time, as well as a remarkable achievement, MRI's IT department established electronic patient records that included test request ordering/results reporting the day before 'Go Live' on Easter Sunday, 12th April.

Did we over-cater?

Early UK modelling studies suggested that the unmitigated spread of COVID-19 would lead to 23 million cases[1] with bed demand exceeding surge capacity by over thirty times. In practice such demand has never materialised. Just 51 patients have been treated at the 4000 bed medical facility situated in the refurbished ExCel Centre in London's Docklands. Nightingale units in Birmingham and Harrogate have not treated a single patient. In Manchester 104 patients were admitted and there was no call on the continuous positive airway pressure capability.

Of the 36 Alinity analysers that were delivered, 8 were put into action but only 4 were in use at any one time. User feedback highlighted their indispensable

value in the assessment of electrolyte and blood gas disturbances requiring immediate management decisions. Fifty-nine patients' samples were analysed on-site, an average of 0.65 samples per day. Thirty-nine samples were for urea/electrolytes, 20 for blood gases. Where duplicate analyses were carried out for urea/electrolytes there was good comparison with MRI except for potassium results which were on average 0.7 mmol/L lower at the Nightingale. This was in part thought to be related to the higher level in serum due to potassium release during blood clotting, possible transport delays, but may also be linked to the reported hypercoagulability of COVID patients' blood.[2] For 2 patients, differences of >1 mmol/L were noted. Further follow up is underway.

What happens next?

Manchester admitted its last patient in early June and went into standby at the end of June. Across the NHS the Nightingales remain in a state of second wave readiness. Whilst London's ExCel and Birmingham's NEC could re-open for live events, exhibitions and conferences in October, Manchester and Harrogate

remain on standby. As field hospitals they are also amongst the largest non-acute medical facilities across the NHS. Options on continued deployment include direct referrals from primary care to allow secondary care to become 'COVID-free zones', referrals from secondary care to help ease growing waiting lists, admissions from care homes, as cancer diagnostic/ treatment centres to tackle backlogs of cases, or as out-patient imaging locations.

Would we do anything different?

Probably more, rather than less, POCT. The advent of more reliable bedside PCR-based technology for COVID-19 testing may allow a bypassing of 1-2 day reporting delays we experienced in discharging patients to care homes where a recent negative test is required before a patient can be accepted. A future repertoire could also include INR testing. With 25% of patients on anticoagulant treatment and a significant number of patients with co-morbidities, we underestimated the demand. On a positive note Point of Care Testing *per se* has come under a welcome spotlight from which it won an abundance of advocates across the Nightingale through its contribution to making rapid, reliable and right clinical decisions, ease of technology use, and speedy deployment with minimal surrounding need. Should resources allow more laboratory staff to be released from secondary care the opportunity to step outside to deliver its value is likely to be there for some time yet.

References

1. Davies NG, Kucharski AJ, Eggo RM, Gimma A, Edmunds WJ, Centre for the Mathematical Modelling of Infectious Diseases, COVID-19 Working Group. Effects of non-pharmaceutical interventions on COVID-19 cases, deaths, and demand for hospital services in the UK: a modelling study. *Lancet Public Health.* 2020.
2. **https://www.uptodate.com/contents/coronavirus-disease-2019-covid-19-hypercoagulability.** ■

The POCT support team

SMC: When scientists speak freely, it's better for everyone

Fiona Fox, Director of the Science Media Centre

Since March, the ACB has been partnering with the Science Media Centre to support the accurate reporting of science during the pandemic.

I have spent years kicking up a fuss about restrictions on scientists connected with government. During previous emergencies I have raged against rules that made the best scientists fall silent in the media because being appointed to the Scientific Advisory Group for Emergencies (SAGE) meant signing non-disclosure agreements and even the Official Secrets Act.

So you might expect me to be joining in the criticism about a lack of transparency of scientific advice during COVID-19. I am not. In fact I am struck by the opposite. We have seen unprecedented levels of media engagement from scientific advisers. There were the daily Downing Street press conferences, often with Sir Patrick Vallance and Chris Whitty, and if we were left wanting more we could turn on the TV to catch them and SAGE members being grilled by politicians on select committees. SAGE members such as Jeremy Farrar, Susan Michie, Neil Ferguson and John Edmunds have been all over the media, often sounding a different note to ministers and warning that lockdown was being lifted too soon.

After the furore about Dominic Cummings attending SAGE meetings, I expected my invitation to Vallance, to take part in a press conference about how SAGE works, to be turned down. It wasn't, and 45 journalists got to question him about Cummings and every aspect of how SAGE works.

Of course, things could have been better. I lobbied government communications people from day one to publish the names of the independent scientists on SAGE. Their refusal on the grounds of a "duty of care" to the experts rang hollow, given the scientists wanted the information out there and the failure to do so exposed them to a narrative about SAGE as a secretive cabal.

As media pressure grew, Whitty and Vallance made it clear publicly that they favoured publishing the membership alongside minutes and papers from all SAGE meetings. Special advisers gave in and from April the Chief Scientist has run separate weekly press briefings for science journalists to coincide with the publication of SAGE papers.

Critics of the lack of openness suggest we have learnt nothing from previous crises. Thankfully they are wrong. During BSE there was no SAGE, and independent scientific advisers briefed government officials behind closed doors. During Fukushima and the volcanic ash disruption, scientists appointed to SAGE in effect left the public domain.

The lesson we should learn from COVID-19 is how important it is to hear directly from the scientists advising government and why we must not return to the bad old days when they were hidden from view. ■

Unpredictable inaccuracy is not included in assessing COVID-19 antibody tests

Adel Ismail, Consultant in Clinical Biochemistry and Chemical Endocrinology (Retired); and J Howard Smith, Senior Technical Head (Retired), Immunoassay Section; Clinical Biochemistry

Positive and negative "predictable" values (PPV and NPV) using the well-established 2×2 contingency table and ROC curves are used by HPE and Oxford University to assess "predictable" inaccuracy of COVID-19 immunoassays. However, immunoassays[1, 2] are unique in having additional "unpredictable" inaccuracy because the reagents used are antibodies. The "unpredictability" is created by the huge diversity of endogenous immunoglobulins of different classes, subclasses and molecular variants (proteoforms) occurring even within a specific class[3] e.g. IgG. This is further compounded by antibodies generated over the period of an activated immune response. It is therefore not surprising that some of this vast array of endogenous antibodies in some individuals fortuitously interact and interfere with antibodies used as biological reagents leading to random and insidious analytical errors. This error manifests as false positive and/or false negative results[2] which persist for weeks or even months making repeat tests during this period highly misleading too. Furthermore, the percentage of false positive and negative rates is affected by the cut-off point in this statistically binary system,[4] in which changing the cut-off point results in simultaneous transposition of the test's sensitivity (true positive results ruled-in) and specificity (true negative results ruled-out).

Recently, immunoassay tests for COVID-19 antibodies were independently assessed by PHE[5, 6] on 19th May, updated 8th June 2020 for Roche (Elecsys, Cobas), Abbott (Architect 2000) and Ortho (Vitros) and more recently in July 2020 for Abbott, DiaSorin, Roche and Siemens using two cohorts: (a) convalescent samples confirmed by PCR for seroconversion and (b) antibody-negative samples (historic samples). The outcome of analyses was used to calculate PPV and NPV and test accuracy. Test sensitivities ranged from 92.7-98.1% and specificity 98.6-99.9%.

The purpose of this note is to reiterate the unpredictable analytical inaccuracy unique to all immunoassays irrespective of assay nature/format and which may be used to assess "immunité collective" under field environments and a large mix of cohorts. Although such a process may not be justified for urgent tests aimed at limiting the current COVID-19 pandemic, it is redolently apparent that the reported accuracy of COVID-19 antibody tests is "partial" and did not encompass this source of "unpredictable" inaccuracy. It may therefore be reasonable to suggest that follow-up affirmative tests such as doubling dilutions, which could help in detecting up to 60% of unpredictable false results[7, 8] should be appropriately considered, being a local, fast (<1 hr) and simple tool to ameliorate this source of inaccuracy and misclassification in the population at large.

References

1 Ismail AAA. Serological tests for COVID-19 antibodies: Limitations must be recognized. *Ann Clin Biochem* 2020; **57:** DOI: 10.1177/0004563220927053
2 Ismail AAA. When laboratory results can mislead even when they appear plausible. *Clin Med* 2017; **17:** 329-32
3 Beck A, Liu H. Macro- and Micro-

Heterogeneity of Natural and Recombinant IgG Antibodies. *Antibodies* 2019; **8:** 18-40. DOI: 10.3390/antib 8010018

4 Zhelev Z , Hyde C , Youngman E , Morwenna Rogers M , Fleming S, Slade T, Coelho H, Jones-Hughes T, Nikolaou V. Diagnostic accuracy of single baseline measurement of Elecsys Troponin T high-sensitive assay for diagnosis of acute myocardial infarction in emergency department: systematic review and meta-analysis. *BMJ* 2015; **350:** h15 doi: 10.1136/bmj.h15

5 https://www.gov.uk/government/publications/covid-19-laboratory-evaluations-of-serological-assays

6 https://www.gov.uk/government/publications/covid-19-head-to-head-laboratory-evaluation-of-4-commercial-serological-assays.

7 Ismail AAA. On detecting interference from endogenous antibodies in immunoassays by doubling dilutions test. *Clin Chem Lab Med* 2007; **45:** 851-4

8 Ismail AAA. On the interpretation of affirmative follow-up tests in immunoassays: what must not be done? *Ann Clin Biochem* 2006; **43:** 249-51

ACB responds to launch of new National Institute for Health Protection

On behalf of the ACB President, Professor Neil Anderson and Dr Robert Shorten, Chair, Microbiology Professional Committee, the following statement was issued to press via the Science Media Centre in response to Matt Hancock's speech launching the new NIHP:

The ACB welcomes any approach to support the public health of the nation. We would firstly like to thank wholeheartedly Members who work at Public Health England for their tireless efforts over the previous eight months and also recognise their dedicated work on essential non-COVID-19 public health issues. The work carried out by senior Clinical Scientists, who are world leaders in the field of novel and emerging pathogens, has led to the rapid development and validation of diagnostic tests for COVID-19. This has enabled the swift adoption of COVID-19 tests and ensured effective testing processes. It is regrettable that this dedicated workforce learned of the plans to replace their organisation in such a manner. However, I know that they will approach this next challenge with their usual professionalism and diligence.

We need a collective, concerted effort to tackle the next phase of the COVID-19 outbreak, and Clinical Scientists and laboratories should be at the heart of this. The proposed remit of the new National Institute for Health Protection must support the mitigation of risks around climate change and population growth, that have made outbreaks of novel and emerging pathogens more likely. It is vital that any agency with the remit to tackle this pandemic, and whatever infections follow it, has a strong scientific core. It should combine the current world-leading scientific expertise with the resource to respond on an appropriate scale.

PHE was a scientific organisation at its heart, we hope the NIHP will build on that strong tradition. Science is led by evidence, which can change over the course of time, and will inform the best response and outcome. In addition we hope the NIHP will also support the many other aspects of public health that describe the population's health, in particular the high incidence of obesity, type II diabetes and vascular disease that have been identified as having a significant effect on outcomes from COVID-19 infection. We hope that the NIHP will work constructively across systems and with the NHS to achieve improved public health. ■

Office for National Statistics expands COVID-19 testing study

Infection survey to expand from testing 28,000 people per fortnight to 150,000 by October.

Read the press release here: **https://www.gov.uk/government/news/huge-boost-to-national-testing-study-will-offer-new-covid-19-insights**

Published 19th August 2020 ■

NHS Staff Council – Updated guidance on quarantine and shielding

As holidays overseas have been on and off the cards since the end of July, and in light of the extensive publicity, NHS Staff Council has updated the guidance regarding quarantining and shielding. The new guidance documents can be found at: **https://www.nhsemployers.org/engagement-and-networks/nhs-staff-council/joint-statements-and-papers**

Additionally, the Government announced on 31st July that health and social care staff will no longer have an exemption from self-isolation on return from high risk countries: **https://www.gov.uk/government/news/health-and-care-workers-to-self-isolate-on-return-to-england-from-high-risk-countries**

The list of "travel corridor" countries is regularly updated, sometimes at short notice, so do keep a close eye on **https://www.gov.uk/guidance/coronavirus-covid-19-travel-corridors** if you have overseas travel planned.

Support for Retired Members

Ruth Lapworth MBE, Organiser, Retired Members' Group

We recognise Retired Members might be experiencing particularly difficult periods of isolation. If you would like to connect by email or telephone with other Retired Members in the current circumstances, let us know by emailing **retired.connections@acb.org.uk**

Send us your good news stories

Have you heard about a lab doing incredible work on COVID-19 testing? Or perhaps you'd like to share how you're staying positive during self-isolation? Email **communications@acb.org.uk** with your experiences during this difficult time to share with other Members.

Have you seen inaccurate reporting of science in the press?

The ACB has a role in ensuring that the influencers of public opinion are hearing from experts to inform their reporting. If you see inaccurate science reporting of COVID-19 testing in the press, please let us know asap by emailing **communications@acb.org.uk** and the ACB Communications team will consider how best to respond to make sure the inaccuracies are corrected, for example, by issuing an expert briefing to the press.

Keep up to date with COVID-19 news on the ACB website:
http://www.acb.org.uk/whatwesay/covid19-updates

ACB Clinical Biochemistry Education Session

Wednesday 14th October 2020

2pm-5pm by MS Teams

This half day virtual event has been arranged by the ACB Education, Training and Workforce Committee to help support general training in Clinical Biochemistry including for those working towards FRCPath or those fully qualified and looking to refresh their skills.

Programme

14:00	Duty Biochemist scenarios	*David Housley*
14:45	Paediatric Biochemistry for the generalist	*Donna Fullerton*
15:30	Challenges and considerations with POCT	*Katy Heaney*
16:15	Toxicology case studies	*Nigel Brown*

This is a virtual event to be held via MS Teams but registration to attend is required.

Complete the registration form **(http://www.acb.org.uk/docs/default-source/meetings/national-meetings/20201014-acb-clinical-biochemistry-education-session-registration-form)** and return to **admin@acb.org.uk** to reserve your place. ■

Sudoku This month's puzzle

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

Solution for August

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

ScheBo® • Biotech UK Limited

ScheBo® • Biotech now provides a choice of faecal elastase tests - which one is right for your laboratory?

ScheBo® • Pancreatic Elastase 1 Stool Test ELISA

Established non-invasive pancreatic exocrine function test

- The 'original' and fastest faecal elastase quantitative ELISA
  - just 60 minutes total incubation time
- Uses monoclonal antibodies
  - patients can continue 'enzyme therapy'
- Four standards and two controls, ready to use
- Manual tests or can be automated
- Convenient ScheBo® • Master Quick-Prep™ device available

21 years experience faecal elastase experts

'Faecal elastase' has become established as the 'gold standard' non-invasive laboratory test for pancreatic exocrine function.

- Confirm or exclude pancreatic exocrine insufficiency
- Results within minutes
- Easy to perform
- Economical, even when testing individual samples
- Kit includes ScheBo® • Quick-Prep™ tubes for simple and convenient sample collection and extraction

Also

ScheBo® • Pancreas Elastase 1 Quick™

Rapid test of pancreatic exocrine function

To discuss your needs and for further information please contact:

Ivor Smith, ScheBo® • Biotech UK Limited, P.O. Box 9459, Lyme Regis, DT6 9FL, U.K.

Tel : 01256 477259 • E-mail : i.smith@schebo.co.uk • www.schebo.co.uk

Who are the ACB's Council Members and what do they do?

Q&A with ACB Council Member Dr Rob Shorten

Dr Rob Shorten is a Consultant Clinical Scientist at Lancashire Teaching Hospitals NHS Foundation Trust and is the Chair of the ACB Microbiology Professional Committee. His work focuses on the provision of clinical microbiology services and he has broad research interests, with a background in tuberculosis and high consequence infectious diseases. In his spare time he enjoys spending time with his family, music, and is a temporarily lapsed drummer and home brewer.

1. Why did you become a Microbiologist?
I initially trained as a Biomedical Scientist in Biochemistry. The small lab where I trained did multidisciplinary on call, so I needed to train in Haematology, Blood Transfusion, Microbiology and Phlebotomy to join the rota. As soon as I started to find my feet in the Microbiology lab, I knew that was what I wanted to do. I was hooked by seeing the organisms growing on the plates and directly relating them to the clinical details provided.

2. What is the Microbiology Professional Committee?
We are a small group of enthusiastic Clinical Scientists in Microbiology and Virology. We want to highlight our profession and to ensure that the expertise of our members is utilised to provide the best possible diagnostics and care for infectious diseases.

3. How does the Committee support ACB Microbiology Members?
A large proportion of our time is directed to support Trainees. We are a friendly, supportive group who are on hand to offer support and advice to all Members, regardless of their career stage. We also interact with other organisations, such as the Federation of Clinical Scientists, the National School of Healthcare Science, and the Academy of Healthcare Science to ensure that our Members are represented and their interests are taken into consideration.

4. How did you get involved with the Committee and why did you stand for Chair?
I joined the Committee as an Ordinary Member approximately 10 years ago and then served on the Scientific Committee for several years. Since then, us Microbiologists have integrated more and more into the ACB. I put myself forward as Chair in May 2019 because I am passionate about promoting Clinical Scientists to senior positions of influence in our healthcare system. I also felt that I could steer us through the next exciting transitional phase of the ACB. Having a phenomenal team around me helps to make the job easier!

5. What is the proudest moment in your career so far?
I was the Laboratory Lead in the Kerry Town Ebola Treatment Centre, Sierra Leonne for a month in late 2014. We took 12 scientists from a range of backgrounds and developed an outstanding team despite challenging conditions during what was the height of the West Africa Ebola outbreak. We processed hundreds of specimens daily and put processes in place to ensure that high quality, rapid tests could continue long after our team's deployment had ended.

6. What does a typical day look like for you?
It might consist of providing Consultant-level clinical advice on the management of infectious diseases for our 700-bed teaching hospital and surrounding primary care colleagues. I may meet with our STPs and HSSTs to provide support for their training. I also have a responsibility to contribute to trust-wide policies, so I may meet with teams from outside of my department, for example in establishing our paediatric antibiotic guidelines. I am also the Departmental Lead for research, so could spend time dedicated to this, including the supervision of medical students.

7. Which emerging areas of Microbiology are you most excited about?
I think that the pace of adoption of molecular diagnostics will increase significantly. Rapid diagnostics, including multiplex panels, such as for gastrointestinal and respiratory pathogens will provide much quicker turnaround times. I expect an increased drive to utilise novel molecular technologies to aid in our battle against antimicrobial resistance by optimising antimicrobial stewardship.
I also think that an optimised personalised approach to antimicrobial therapy, linking laboratory susceptibility data and therapeutic drug monitoring will be an area to watch.

8. How have the ACB's Microbiologists responded to the COVID-19 pandemic?
Our Members have been outstanding. The development, validation, and roll out of new diagnostic assays for infectious diseases fits right at the heart of the job description of a Clinical Scientist in Microbiology and Virology. New tests have been rapidly rolled out in incredibly challenging circumstances. Services have been reconfigured at very short notice to provide rapid, high quality tests at scale.

9. What's next for Microbiology at the ACB?
In the short term, we wish to further highlight the integral role of Clinical Scientists in the diagnosis of a novel viral pathogen, and to ensure that our voice is heard in the appropriate forums. In the medium term, we would like to continue our integration into the ACB as it undergoes significant changes. We want to support the exciting changes to our website and communications, and to

ensure that we can continue to influence other organisations to the betterment of our profession and members.

10. Tell us three things you love about the ACB

1. That the whole focus of what we do is patient centred; we want better science and testing to allow better care for our patients.
2. We are the preeminent body dedicated to supporting Clinical Scientists. For Microbiologists and Virologists, it can sometimes feel that it's 'them and us' with our medical colleagues. Having an organisation that aims to highlight the added value of Clinical Scientists and attempts to break down barriers is very positive.
3. I feel that we are a friendly and supportive group. Someone can always help you out. The network that we have allows us to tap into a significant pool of knowledge and experience.

How can ACB Members get involved with the Microbiology Professional Committee?

Get in touch! We are always happy to hear from Members, whether it be a request for help or advice, or an offer of help. Contact us via the website: **http://www.acb.org.uk** or via Twitter: **@TheACBNews @robshorten** ■

Westminster Health Forum Conference

Data in healthcare and life sciences – collection, innovation and data use

Tuesday, 20th October 2020

This conference will examine the key issues for the use of data in healthcare and life sciences, including discussion on how data is being used in the UK's response to COVID-19 and what can be learned going forward. Registration and further information can be found here:
https://www.westminsterforumprojects.co.uk/conference/Utilising-data-in-healthcare-20

Publication Deadlines

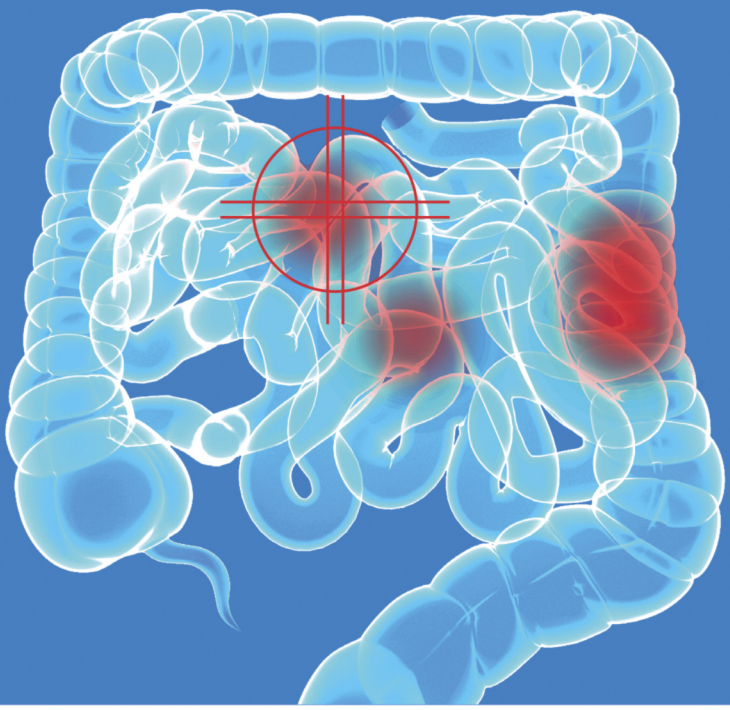
To guarantee publication, please submit your article by the 1st of the preceding month (i.e. 1st November for December 2020 issue) to:

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 Ian Hanning, Lead Editor, via the above e-mail. ■



IDKmonitor® THERAPEUTIC DRUG MONITORING

- optimise treatment of chronic inflammatory diseases

- Measure serum drug levels and anti-drug antibodies (ADAs)
- Identify sub-therapeutic drug levels and monitor drug efficacy
- Range of drug level, free ADA and total ADA ELISAs to maximise clinical information for guiding patient and disease management
- Applicable for monitoring treatment in IBD, rheumatic and psoriatic arthritis, Alzheimer's disease, cancer and depression
- User-friendly, automatable assays, with UK reference lab service available
- Assays compatible with originator drugs and biosimilars

Enabling delivery of significant health and cost benefits

Learn more at www.biohithealthcare.co.uk/TDM

BIOHIT HealthCare
Innovating for Health

Phone +44 151 550 4 550
info@biohithealthcare.co.uk
www.biohithealthcare.co.uk

ACB in the Press

Throughout the COVID-19 pandemic the ACB has been working with the Science Media Centre to respond to media enquiries on the science behind COVID-19 testing. Forming part of the ACB's work promoting the importance of laboratory medicine to the wider community we have responded to over 16 media enquiries since the beginning of the pandemic and featured in 19 press outlets.

Immunity breakthrough is a shot in the arm for everyone

ANDREW GREGORY

Health Editor

Scientists are hailing "very encouraging" signs that people infected by the coronavirus could have lasting immunity. Experts had feared that those hit by the virus could face repeat attacks as the body's defences waned. Now they are beginning to answer the key questions – can we become immune to a disease that has killed almost 800,000 people; how close are we to herd immunity; and what does it mean for the much-feared second wave?

What's new?

Studies have shown for the first time that antibodies can protect against coronavirus reinfection. Even those who have had asymptomatic or mild cases may have immunity. They also found that

very likely to underestimate the immunity in a population that has had a huge exposure to Covid-19, such as London must have done in March when very little testing was available. It also provides an explanation for why we are not seeing local spikes in London."

Does this good news reduce the threat of a second wave?

"A significant second wave is less likely in places where there was a high rate of infection," said Whitelegg. But while those already infected may have immunity, a second wave is a danger to others.

Dr Jenna Macciochi, an immunologist at Sussex University, said: "We need to keep in perspective the number of people who have had the virus and the proportion of individuals like the elderly who may still not be able to develop robust and durable immunity even if they have been infected."

Openshaw is certain the crisis is far from over: "My very strong feeling is that we need to maintain a degree of caution and low levels of infection, because as we enter autumn and winter there is every prospect that we are going to get a big bounce back of the coronavirus and I

The UK is among countries that have imposed local lockdowns. But some scientists believe a second wave here is inevitable. Professor Sir John Bell, regius professor of medicine at Oxford, said a "really bumpy" winter was on the way, especially with the additional risk of flu.

"My bet is that we will get a second wave and the vaccines won't get here in time to stop the second wave," he said.

What about herd immunity?

Experts insist we are not even close. "Even in areas of the country where there's a relatively high rate of antibod positivity, 80%-90% of the population ar still vulnerable – in other words, the haven't been infected," said Openshaw Whitelegg said a vaccine was still needed

Bell suggested it might be easier t achieve herd immunity if lots of peop have T-cell immunity. Some believe T-c response could be a more reliab indication than antibody testing of ho the virus is spreading.

T-cells come from stem cells made bone marrow early in life. They play a k role in getting rid of infections. Some a helper T-cells, which help to activ B-cells to make antibodies. Helper T-c

ACB quoted in *The Sunday Times*

On 23 August Dr Alison Whitelegg, representing the ACB's Immunology Professional Committee, was quoted in *The Sunday Times'* piece on *Coronavirus immunity breakthrough is a shot in the arm for everyone* by Health Editor, Andrew Gregory:

> *"Antibody studies are very likely to underestimate the immunity in a population that has had a huge exposure to COVID-19, such as London must have done in March."*
> - ACB's Dr Alison Whitelegg quoted in *The Sunday Times*

Read the full article here: **https://www.thetimes.co.uk/article/coronavirus-immunity-breakthrough-is-a-shot-in-the-arm-for-everyone-dgws957r0**

Media training for a faster response and improved representation

In order to respond more rapidly to press enquiries and to improve ACB's representation on live media Professor Neil Anderson, ACB President, and Dr Rob Shorten, Chair of ACB's Microbiology Professional Committee, underwent media training with the Press Association in August. We are in the process of consolidating this training so ACB can start to become more proactive and responsive in our media work.

Media briefings from the Science Media Centre

The Science Media Centre has issued two expert reaction briefings on the REACT studies that may be of interest:

Expert reaction to preprint on latest results of REACT-1 study looking at levels of coronavirus infection in the general population in England and Government estimates for R value and growth rates – **https://www.sciencemediacentre.org/expert-reaction-to-preprint-on-latest-results-of-react-1-study-looking-at-levels-of-coronavirus-infection-in-the-general-population-in-england/**

Expert reaction to results from the REACT-2 home antibody testing programme for COVID-19 – **https://www.sciencemediacentre.org/expert-reaction-to-results-from-the-react-2-home-antibody-testing-programme-for-covid-19/**

Interested in becoming an ACB media spokesperson? Please email: **communications@acb.org.uk**

NHS

Black Country Pathology Services

Bromide Analysis

Bromide salts are increasingly being used to treat refractory seizures in children with epilepsy.

The risk of toxicity can be difficult to predict due to considerable individual variation in the threshold for toxicity. Toxicity may be apparent at concentrations well below the therapeutic range. Due to the narrow therapeutic range, regular assessment of serum bromide levels is vital to prevent adverse clinical outcomes.

The Service we provide:

- ICP-MS Technology
- Only a small specimen volume required (50uL)
- Turnaround time within 3 working days
- Cost: £80

0121 507 5348 bcpspathology.info@nhs.net www.bcpathology.org.uk

Clinical Biochemistry, City Hospital, Dudley Road, Birmingham B18 7QH

@BCPathology BCPathology Black Country Pathology TV News

BCPS

NHS Pathology Serving the Black Country

Provided by Sandwell and West Birmingham NHS Trust, The Dudley Group NHS Foundation Trust, The Royal Wolverhampton NHS Trust and Walsall Healthcare NHS Trust.

ACB Scotland hosts regional COVID-19 lunchtime talks

Rebecca Pattenden, ACB Scotland Chair

ACB Scotland has recently hosted a series of free virtual lunchtime talks for ACB and non-ACB Members primarily on COVID-19 testing and the impact of the pandemic on our laboratory and hospital services.

Virtual lunchtime talk pilot suggested in lieu of face-to-face meetings

In collaboration with the ACB Office using the Microsoft Teams platform, the presentations were held in lieu of a one day Scientific Meeting arranged for March 2020, subsequently cancelled due to the COVID-19 pandemic. Initial discussions around this new approach began at our latest ACB Scotland committee meeting. Committee members felt that it was important to provide an alternative platform of communication and learning for our members in the absence of our usual face-to-face Scientific Meetings. A flexible and accessible format of 60 minute lunchtime presentations held over consecutive weeks was chosen as the preferred format. Although registration is required for the pilot series, it is free of charge to attend for both ACB and non-ACB Members.

Talks cover impact of pandemic on laboratory and hospital services

The first four of six lunchtime talks have been well received and attended. The first talk on the subject of PCR testing for COVID-19 was delivered by Dr Kate Templeton on 19 August. Despite various IT glitches during this first presentation, we have since hosted successful talks on a weekly basis. Topics covered include COVID-19 antibody tests (presented by Dr Sara Jenks), the impact of COVID-19 on GI services (Dr Shahida Din) and the colorectal cancer pathway (Dr Yasuko Maeda). The remaining organised topics and speakers include: Procalcitonin testing in ITU (Dr Kordo Saeed) and the role of professional teams and networks in COVID-19 (Dr Bernie Croal).

Over the coming weeks and months we hope to expand these talks to other areas of interest. We welcome any ideas or suggestions on topics or speakers from ACB Members.

Pilot successfully delivered scientific updates to members in a new way

Our piloted approach has demonstrated our ability to deliver scientific updates to our members in a new way, successfully, in a relatively short period of time. The talks presented have highlighted the value of laboratory medicine in the COVID-19 pandemic along with the benefits of collaborative working with our clinical colleagues and services.

They have also enabled sharing between Health Boards of the issues faced and the approaches used to overcome the various obstacles.

Get involved with ACB Scotland

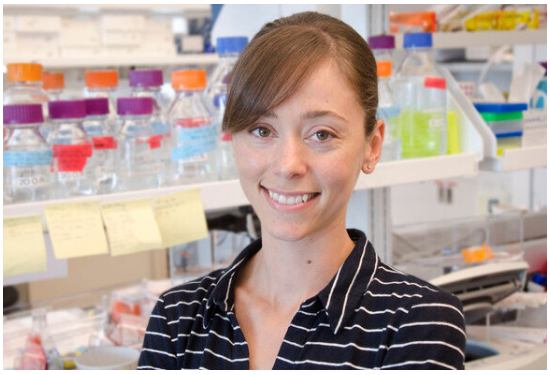
ACB Scotland works to improve all aspects of Clinical Science in laboratories and join with colleagues on a national level to represent Clinical Biochemistry,

Immunology and Microbiology specialties. As a region we have a full and active committee with representation from all areas in Scotland.

Please refer to the ACB website for contact details should you wish to become involved or contact committee members from ACB Scotland.

Finally, I would like to extend my thanks to all the speakers who have contributed to the sessions and to the ACB Office for assisting with the organisation and logistics involved. I would encourage other regions to consider adopting a similar approach for hosting their Scientific Meetings in the future. ■

The Scientist who read a paper every day for 899 days



On 1 January 2018, Olivia Rissland set herself the task of reading one paper per day, every day, as "a bit of a lark".

Olivia says reading a different paper every day has made her a better scientist. **Click here to read her full story.** ■

Reminder to Fellows of the Royal College of Pathologists – Vice-Presidents Election 2020

The Royal College of Pathologists invites you to vote in the election of the next Vice-Presidents of the College.

There are three posts which are open for election.

This is your opportunity to influence directly the future work of the College. The Vice-Presidents serve as Trustees and Honorary Officers of the College. There have been 12 nominations for the three open positions.

Civica Election Services is administering the election on behalf of The Royal College of Pathologists.

Please **click here to vote** and view information to help you make your choice. This link is unique to you and should not be forwarded on to anyone else.

Please read and appraise the personal statements of each candidate carefully before taking the opportunity to vote.

Voting closes at 12 noon on 9th October 2020 and it will not be possible to cast your vote after this time. ■

Awardees announced for ACB COVID-19 Scientific Scholarship *supported by* Abbott

The scientists will look at using biomedical tests and data to improve healthcare for COVID-19 patients by predicting severe health outcomes and developing a saliva-based test in mild and asymptomatic people to create more reliable population level COVID-19 estimates.

As hospitals continue to admit people with COVID-19, there is an urgent need to improve patient care and outcomes, particularly through early identification of those at higher risk of complications. Therefore, all three projects will be completed within 12 months.

The ACB, with support from Abbott, developed the COVID-19 Scientific Scholarship Programme in response to the global pandemic and the recognition that high quality scientific research is vital to inform the best response and outcome of the COVID-19 pandemic. In awarding the scholarships, Alexandra Yates, ACB Director of Scientific Affairs said:

> *"We are delighted to be funding three valuable research projects that demonstrate the ACB's commitment to patient-focused best practice in laboratory medicine. It is hoped results from the research will have a direct impact on evidence to inform public health policy as well as the care of patients with severe COVID-19 complications."*

ACB Member Dr Gemma Reidy, Clinical Biochemist at University Hospital Coventry & Warwickshire, was awarded £20,000 towards research looking at whether biomarkers linked to inflammation of blood vessels from COVID-19 patients can be used to check for an increased likelihood of complications such as thrombosis. These predictions can inform the type of care medics provide to the patient thereby improving patient outcomes. On receiving the scholarship, Dr Reidy said:

Dr Gemma Reidy

> *"Being awarded the Scientific Scholarship was crucial for our research. Our aim is to investigate how severe complications associated with COVID-19 evolve in order to better identify and treat patients at risk of developing these complications. I feel privileged to be part of a team helping to improve the lives of patients in Coventry, Warwickshire and beyond."*

Dr Joe Frost

The ACB awarded £10,000 to Dr Joe Frost, ACB Member and Postdoctoral Researcher with the Drakesmith Group, MRC Human Immunology Unit, University of Oxford, to investigate whether combining measurements of inflammatory biomarkers and iron levels in the blood of COVID-19 patients could predict severe disease outcomes, including persistent anaemia. These predictions can inform the type of care medics provide to the patient thereby improving patient outcomes. Dr Frost said:

> *"I am grateful to the ACB for supporting our research exploring the role of iron in COVID-19. I am excited to evaluate the potential of iron as a clinical biomarker that could help personalise and improve the treatment patients with COVID-19 receive."*

A further £20,000 was awarded to Dr Adrian Shields, ACB Member and Academic Clinical Lecturer in Immunology, Clinical Immunology Service, University of Birmingham, whose research project aims to look at how measuring the antibody response in the saliva of mild and asymptomatic people could contribute to better quality estimates of the level of COVID-19 within a population. Knowing the level of COVID-19 within a population guides public health policy during the pandemic. On winning the funds, Dr Shields said:

> *"I'm delighted that the ACB are supporting our work. We have already collected thousands of blood serum and saliva samples from hospital and community-based health care workers who have been at very high risk of exposure to the virus causing COVID-19. By measuring levels of the antibodies created to get rid of the virus in saliva samples and comparing them to blood serum samples, we hope to gain insight*

Dr Adrian Shields

into immunity in the saliva against the virus and consider whether saliva can be used as an alternative to serum for determining the level of COVID-19 infection within a population. Our findings may have important implications for vaccine development and future epidemiological studies."

Abbott has been at the forefront of developing new testing solutions to combat the COVID-19 pandemic.
In supporting this scholarship, Mike Clayton, Managing Director Northern Europe, of Abbott's Diagnotics Division said:

"I also really need the publications section now as we are approaching the final proof stage.

Public Health and NHS laboratories have been vital to the public health response to the COVID-19 pandemic. Many of the ACB's Members work in these laboratories to help prevent, diagnose and treat illness using their knowledge of science and their technical skills. The COVID-19 Scientific Scholarship Programme builds on this expertise by financially supporting our scientists through research to improve care for COVID-19 patients and the quality of population level data on which to base public health decisions.

About the research projects

Profiling Cytokine storm and markers of endothelial dysfunction during severe COVID-19 infection
Awardee: Dr Gemma Reidy
COVID-19 is a new disease with unexpected presentation and complications. We urgently need to develop robust risk classifiers exploiting predictive value of biomarkers to better characterise patient phenotypes and predict complications and outcomes. Emerging evidence from patients with COVID-19 suggests that endothelial cells are essential contributors to the initiation and propagation of severe COVID-19 disease. Vascular endothelial dysfunction associated with inflammation (endotheliitis) can be amplified in the presence of a cytokine storm, one of the key features of COVID-19 disease.
This proof-of-concept project will investigate whether profiling the cytokine storm and a series of experimental markers of endothelial dysfunction can provide important phenotypic clues and a better understanding of a possible link between inflammation and endothelial dysfunction associated with COVID-19 complications especially thrombosis and coagulopathy. We propose to study these markers in a series of longitudinal blood samples collected from severe COVID-19 patients admitted at the University Hospital in Coventry.

Can the measurement of anti-SARS-CoV-2 salivary antibodies enhance the sensitivity of seroprevalence studies and are these antibody responses clinically relevant?
Awardee: Dr Adrian Shields
Seroepidemiological studies can guide public health policy during the COVID-19 pandemic. However, existing studies have delivered inconsistent estimates of population-level seroprevalence, due variability in the performance of immunoassays used to document serostatus and a failure to consider immune responses may be compartmentalised to mucosal surfaces in mild/asymptomatic disease. Using our in-house ELISA, optimised for the detection of anti-SARS-CoV-2 antibody responses in mild/asymptomatic disease and employing three existing cohorts of high-exposure healthcare workers (n=4,500), this project will use saliva to explore upper respiratory tract mucosal immunity against SARS-CoV-2 and test two hypotheses. Firstly, that the overall sensitivity of a SARS-CoV-2

seroepidemiological study may be enhanced by considering mucosal antibody responses in unstimulated saliva, a fluid enriched in mucosal IgG and IgA, alongside systemic responses. The clinical relevance of mucosal immune responses will be considered by following a high-exposure cohort of healthcare workers longitudinally during future waves of the pandemic. Secondly, using stimulated saliva, a medium enriched with serum-derived IgG from gingival crevicular exudate, that saliva is non-inferior to serum as a diagnostic fluid for performing seroepidemiological studies.

Linking iron with inflammatory profiles and clinical outcomes in COVID-19
Awardee: Dr Joe Frost
Serum iron levels in COVID-19 are profoundly low (hypoferraemia) and associate with concurrent disease severity. Hypoferraemia observed during infection is driven by inflammation, suggesting there are unidentified inflammatory profiles behind low serum iron in COVID-19 that may associate with clinical outcomes. Downstream of hypoferraemia and inflammation, anaemia is a currently understudied morbidity in convalescent COVID-19 patients. We propose to couple blood inflammatory profiles, quantified using Olink targeted proteomics, and iron parameters, measured on admission in a cohort of COVID-19 patients with longitudinal biochemical data and clinical outcomes. We expect this study to provide: (i) immediate patient benefit through the evaluation of serum iron as an accessible biomarker for disease outcome; (ii) novel panels of blood inflammatory mediators which, in combination with iron parameters, could constitute more refined biomarkers for mortality, morbidity and persistent anaemia in COVID-19, and (iii) a unique insight into the pathophysiology of inflammatory hypoferraemia in COVID-19 infection.

ACB Trent, Northern & Yorkshire Region Summer 2020 News

Dr Hannah Delaney, Chair

TNY Scientific Meetings

The ACB Trent, Northern & Yorkshire Region Autumn Winter Scientific Meeting will be held on 20th November 2020. The meeting is being organised by Nuthar Jassam, Consultant at Harrogate Hospital and will be held in a virtual format with the afternoon session covering the very topical COVID-19! Minutes will be available to all ACB Members on the ACB website.

It was with regret that the Summer meeting in Newcastle had to be postponed due to COVID-19. This meeting is now provisionally rescheduled to take place on 23rd April 2021 with the topic of Lipids.

Further details will follow on the ACB website: **http://www.acb.org.uk/whatwedo/events/regional_meetings.aspx**

Geoffrey Walker Award

There were 3 applicants for the Geoffrey Walker award this year. Presentations took place at the Spring TNY Scientific Meeting in Sheffield and were of a very high standard. The award went to Roger Bramley from Leeds for his work on Purines and pyrimidines: method development and clinical utility. Roger was given an engraved award in permanent recognition of his achievements. In addition, he was awarded a £100 book token and a £1,000 bursary towards the cost of a national or international meeting.

Old and New Committee Members

Sarah Glover came to the end of her 3 year term as Secretary for the TNY Region in March 2020. On behalf of the TNY Region, I'd like to thank Sarah for her hard work and dedication.

Gemma Minett has since commenced in the position of TNY Regional Committee Secretary. Gemma is a Consultant Clinical Scientist at Hull Royal Infirmary and has served on the Committee as an Ordinary Member since 2011.

Hafsa Iqbal from Nottingham University Hospital has taken up the position of Ordinary Member for Trent.

Ben Nicholson, Sheffield Children's Hospital, has taken up the position of Ordinary Member for Yorkshire.

I'm delighted to welcome all the new members to the committee.

Committee Vacancies

The position of FCS Representative for the Northern region remains vacant. Expressions of interest from Members in the Northern Region would be welcome. A job description is available on request from the Secretary, Gemma Minett. More information on the role is available from Iain Woodrow, who has kindly been covering the vacancy on a temporary basis.

Bursaries

Bursaries of up to £750 may be available to assist regional members of the ACB to attend meetings or conferences, or to spend a period of time working in another establishment for the purposes of gaining experience in a particular topic. For more information visit: **http://www.acb.org.uk**

New Trainees

New Clinical Scientist Trainees within the region are encouraged to make contact with their Trainee Representative on starting in post. Northern & Yorkshire: **katie.malton@nhs.net** and Trent: **lauren.hymns@uhl-tr.nhs.uk** ■

LAB TESTS ONLINE UK

Your Trusted Guide

Peer Reviewed • Non-Commercial • Patient Centred

Produced by The Association for Clinical Biochemistry & Laboratory Medicine

In partnership with AACC

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 doctors and scientists with lay editorial review of content to ensure it's 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.

What's New on Lab Tests Online-UK?

NEWS Cholesterol concentrations have been falling in the west and rising in Asia.

LTO-UK fact of the month

Did you know that LTO-UK is completely non-commercial and funding is provided by the ACB, the IBMS and the RCPath. It ensures the independence of the information provided and means there are no adverts on the website!

Meet the Lab Tests Online-UK Board

Chair of the Board: Dr Danielle Freedman

Dr Freedman is a practising Consultant Chemical Pathologist and Associate Physician in Clinical Endocrinology, she is the Clinical Director of Pathology at the Luton and Dunstable University Hospital and the joint Medical Director for Bedfordshire Hospitals NHS Foundation Trust. Dr Freedman has been chair of the LTO-UK board for 8 years and continues to lead the board with a passion to maintain the non-commercial nature of LTO-UK with a focus on providing accurate, peer reviewed and easy to understand information for patients.

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 *labtestsonlineuk@acb.org.uk* for more information. It's a great opportunity to expand your knowledge, earn CPD points and contribute to a worldwide patient resource.

Become a Lab Tests Online-UK champion

Join our champions and promote LTO-UK locally and nationally. We are always keen to hear how you are helping to promote LTO-UK in your locality, champion packs provide a great starting point with ideas and marketing materials, for more information or to join our champions contact us *labtestsonlineuk@acb.org.uk*

What goes on behind the scenes?

In addition to running the website the LTO-UK team also reaches out to patient focussed organisations to promote the website at conferences and by writing news articles. If you're interested to find out more please contact *rebecca.powney@ldh.nhs.uk*

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

New IFCC Task Force on Global Newborn Screening – call for nominations

We would like to bring to your attention the opportunity for ACB Members to apply for nomination to join a new IFCC Taskforce on Global Newborn Screening (TF-NBS).

Newborn screening (NBS) significantly reduces infant morbidity and mortality by initiating early detection, treatment, and management of newborns with congenital disorders. In 2015, it was estimated that only one third of infants around the world receive screening at birth. In alignment with the IFCC's strategic plans for 2020-2023, to directly impact healthcare and patient outcomes in developing countries, the IFCC Taskforce on Global Newborn Screening will establish a Global Newborn Screening Initiative to address this critical gap. As part of this initiative, the IFCC will initiate NBS Pilot Projects in select developing countries (i.e. partner countries). Emphasis will be placed on scientific and technical support for the development of laboratory policies and procedures, training of staff, as well as equipment required for NBS implementation.

Scope and mandate

- Select countries for IFCC's NBS Pilot Project via a call for participation to IFCC member societies using pre-defined selection criteria. A formal call for participation by developing countries will be issued soon by the IFCC office.
- Identify potential participating centres (e.g. healthcare facilities and laboratories) and stakeholders (e.g. government ministries and/or agencies) within each partner country.
- Engage with these centres in order to conduct situation assessment (i.e. information in regard to NBS-related diseases as well as resources/barriers in the partner country).
- Identify ways in which the IFCC can provide lacking resources and support.
- Develop a detailed protocol for an initial Pilot Project specific to each partner country. The proposal will be presented to the partner country via the respective IFCC member society. The Pilot Project implementation must be conditional on the partner country's commitment to its continuation following IFCC's initial financial support.
- Implement the Pilot Project in participating centres in each partner country in collaboration with the IFCC member society and other stakeholders.
- Monitor and evaluate the progress of the overall IFCC NBS Initiative, as well as the progress of specific Pilot Projects, through data collection and onsite/virtual visits by dispatching scientific teams to each partner country.
- Plan for the expansion of the IFCC's NBS Initiative, as well as the expansion of each NBS Pilot Project.

Any interested members should email a CV and a brief paragraph of why you would like to take up the position to Mike Lester (**mike@acb.org.uk**) in the first instance who will co-ordinate the process of acquiring national body (ACB) support for a nomination.

Interested members should submit their application by the15th October 2020.

Annals update for ACB News readers

Michael Murphy, Editor-in-Chief, Annals of Clinical Biochemistry

I began my last piece for the *ACB News* with: "Readers of the *ACB News* might like to know what's going on at the *Annals*. The answer is: lots!". Indeed, I can say the same again; there is much to report.
In July, the 2019 impact factor (IF) was announced: 2.044, our highest since 2015. This reverses a very slight downward trend over recent years, and brings us back above the psychologically important threshold of 2.0. The IF is by no means the only measure of impact, and is far from perfect, but it still has a currency across the world of academic publishing. So it's nice to be reassured that we are heading in the right direction

The *Annals* Twitter account (**@AnnClinBiochem**) goes from strength to strength, and recently we reached our first 500 followers. My colleague Jenny Nobes has joined Ceri Parfitt as Social Media Editor. As always, we welcome suggestions and indeed tweets from *Annals* readers about articles that they find interesting or useful, or otherwise sharing their thoughts on journal content. (Our publishers at SAGE continue to make access to tweeted articles free to all for two weeks after posting).

Online usage (full-text downloads) is enormous and thoroughly vindicates the decision of my predecessor as Editor-in-Chief, Dr Edmund Lamb, to open access to all but the current and previous years' issues. The numbers are really impressive, with more than 600,000 downloads annually in 2018 and 2019; the 2020 year-to-date figure suggests that we shall comfortably exceed this by year's end. This is powerful and independent confirmation of the visibility and impact of the journal.

What else is new?

We've just launched a new Best Practice article category, and already have a couple of articles in the pipeline. We will be commissioning further articles going forward. This is an exciting development and an opportunity to make the *Annals* even more directly relevant to practising Clinical Biochemists.

Our editorial team continues to do an amazing job, in the context of an arduous year, with average time from article receipt to online publication falling further from figures that were already impressive.
It's a real privilege to work with such a dedicated group of colleagues, and I'd like to take this opportunity to thank them very sincerely. I'd also like to thank our Dutch Associate Editor, Professor Rien Blankenstein, who finally stood down recently after many years of outstanding service to the *Annals*. A warm welcome to Professor Yolanda de Rijke who has agreed to replace him.

Finally, I'm delighted to announce that Dr Maurice O'Kane has agreed to join me as Editor-in-Chief – a fitting acknowledgement of his role in recent years. We will be seeking to appoint a new Deputy Editor from within the existing editorial team. ■

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 20 from August's ACB News

Can you match the most likely mycobacterial pathogen with the indication?

1. *M. avium*
2. *M. ulcerans*
3. *M. paratuberculosis*
4. *M. marinarum*
5. *M. malmoense*

A. *6 year old boy presents with painless solitary cervical lymphadenopathy. No history of TB contact. Otherwise well. Aspirate of lymph node is AAFB+.*

B. *African immigrant presents with a chronic ulcer on his foot. Biopsy of edge of ulcer is AAFB+.*

C. *A CF patient who attends the OPD has 3 consecutive sputum specimens over 3 months which are positive for AAFB and growth on LJ slop in 4 days.*

Answer

A-5, B-2 and C-1

Question 21

A person is diagnosed with HCV, genotype 4a. Where in the world is this person likely to be from? (As a bonus, which is the main serotypes commonly associated with the other countries?)

A. *Panama*
B. *Botswana*
C. *East Timor*
D. *Democratic Republic of the Congo*
E. *Japan*
F. *India*

The answer to Question 21 will appear in the next issue of ACB News – enjoy!

ACB Microbiology Professional Group

Annual Scientific and Training Meeting 2020

Tuesday 3rd November 2020

09:25-13:15 BST via Microsoft Teams

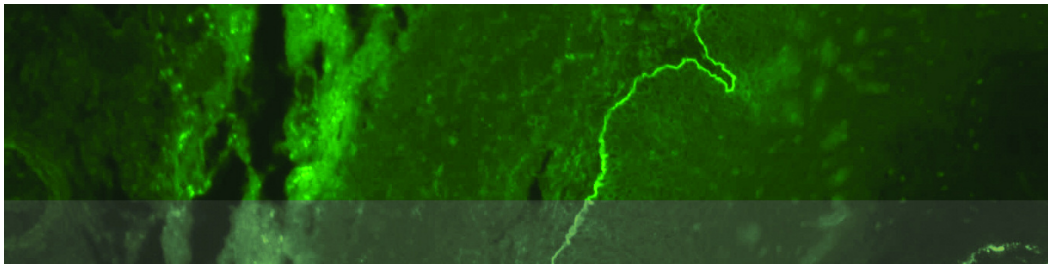
Session 1: Training in times of COVID-19
Session 2: Innovation, research and service provision in times of COVID-19
Session 3: Clinical and Infection control cases

ACB Members, particularly those in training, are invited to submit virology, bacteriology, mycology, parasitology or infection control cases for a 10 minute presentation in Session 3. This is a great opportunity to gain experience at presenting to a wide audience! Please submit a 100 word abstract of your case by email to Mike Lester at **mike@acb.org.uk** in the first instance by the closing date of **Friday 16th October 2020** for consideration by the ACB Microbiology Professional Committee.

Fees: ACB Members – Trainees (pre-registered or working towards FRCPath) – £10.00.
All other ACB Members – £25.00. Non-Members – £50.00.
For registration and further information visit: **http://www.acb.org.uk**

Update from the Immunology Professional Committee

Elizabeth Bateman, Rachel Wheeler and Alison Whitelegg



As we all work out what the 'new normal' looks like, some of our membership face particular challenges.

New STP Trainees have missed out on the usual face-to-face rounds of interviews, and will start their MSc course with more online teaching than previously. As a smaller discipline, a national Immunology network is invaluable. Online teaching makes it all the more challenging for the STPs to get to know other Trainees and Clinical Scientists across the country. It is important that we use our virtual networks to communicate with each other, preferably with video cameras switched on, to help ease this. Please help your Trainees to build their support networks, and encourage them to make contact via email with the Immunology Education Lead (**alison.whitelegg@uhs.nhs.uk**) and the Pre-Registration Trainee Representative Dinesh Mohanraj (**dinesh.mohanraj@porthosp.nhs.uk**).

The FRCPath Part I and II exams in Immunology will be run entirely online, with no face-to-face components. This is the first time such an approach has been used, and examiners and the College team are working hard to make sure it runs smoothly. For more information, including a Frequently Asked Questions page, please go to the College website:

https://www.rcpath.org/trainees/examinations/examinations-latest-news-and-calendar.html

The Immunology Professional Committee have met virtually, and found this a valuable way to make attendance a little easier to fit in to busy schedules. This has been a great source of support, but virtual calls sometimes lack the vigorous discussions that a face-to-face meeting allows, and avoiding local interruptions and distractions is harder when you are not physically away at a meeting.

Healthcare science continues to be in the news, which is a fantastic opportunity for us to make the public more aware of what we do in hospital laboratories. The ACB communication team has been inundated with requests from journalists for expert comment and opinion. The Microbiology and Immunology Committees have been providing material where relevant, and last month the Immunology Professional Committee were proud to be quoted in *The Sunday Times* after being approached for a clear explanation of T-cell immunity against SARSCov19:

https://www.thetimes.co.uk/article/coronavirus-immunity-breakthrough-is-a-shot-in-the-arm-for-everyone-dgws957r0

These are challenging times and we wish everyone well in this next phase. ■

Deacon's Challenge Revisited

No 10 – Answer

A 15 year old boy presents to casualty following a convulsion. It turns out that he had swallowed 30 of his mother's lithium tablets about 10 hours previously. On admission, his lithium concentration is 4.1 mmol/L. A decision needs to be made whether to haemodialyse him to reduce the lithium concentration. As this is not going to be available quickly, the physicians want to know how long he will have toxic levels just with endogenous clearance. Estimate the following, indicating clearly any assumptions you have made:

a) The likely volume of distribution of the lithium at this stage in the situation, given a body weight of 65 Kg.
b) How long it will be before his lithium concentration drops to the relatively safe level of 1.5 mmol/L below which toxicity is unlikely, given a clearance of 0.03 L/h/Kg.

MRCPath, May 2001

---

a) The volume of distribution of a drug is usually calculated by dividing the total dose administered by the plasma concentration. In this question we do not have a reliable estimate of the amount taken. Since lithium is readily water soluble its volume of distribution approximates to body water volume.

Volume of distribution (V_d) = Total body water Vol = Body wt (Kg) x $\frac{\%\text{body water}}{100}$

Assuming an average body water content of 60%:

$$V_d = 65 \times \frac{60}{100} = 39 \text{ L}$$

b) Lithium is excreted by the body by glomerular filtration (with some reabsorption by the proximal tubule) and so it's elimination follows 1st order kinetics:

$\text{Log}_e C_t = \text{Log}_e C_o - k_d t$ ..... (i)

Where C_o = initial concentration = 4.1 mmol/L

C_t = concentration at time 't hours' = 1.5 mmol/L (the 'safe' level)

t = time taken (in hours) to reach the 'safe' level of 1.5 mmol/L

k_d = elimination rate constant

The clearance (Cl) of the drug is given as 0.03L/h/Kg.

Multiply by the patient's weight to obtain the total clearance:

Clearance = 0.03 (L/h/kg) x 65 (kg) = 1.95 L/h

The elimination rate constant can be calculated from the clearance and volume of distribution:

$$k_d = \frac{Cl}{V_d} = \frac{1.95}{39} = 0.050\ h^{-1}$$

Substitute for C_o, C_t and k_d in equation (i) and solve for t:

$$\text{Log}_e 1.5 = \text{Log}_e 4.1 - 0.050 \times t$$

$$0.405 = 1.411 - 0.050 \times t$$

$$0.050 \times t = 1.411 - 0.405 = 1.006$$

$$t = \frac{1.006}{0.050} = 20.12h \quad \text{(20h to 2 significant figures)}$$

Exam tip
Commit to memory the 1st order rate equation, relationship between K_d and C_l, and k_d and $t_{1/2}$. They can be derived from first principles but there won't be time in the exam!

Question 11

Your on-call laboratory service uses 30 different methods, each of which has a 1% probability of failing QC criteria during the course of a night. Assuming that QC of any method is independent of that of the other methods, what is the probability that on any one night all methods will pass the QC criteria?

MRCPath May 2001

Update for Trainees – Analyte Monographs

Gina Frederick, AMALCs Editor-in-Chief

On 5th June 2020 it was agreed by the Education, Training & Workforce Committee that all Trainees will be encouraged to write an AMALC during the course of their training.

AMALCs (Analyte Monographs alongside the National Laboratory Medicine Catalogue) are a comprehensive summary of laboratory medicine analytes written in a specified structure. The intended purpose is to provide a detailed summary of the nature and use of individual assays, providing both clinical and analytical information for Laboratory Staff and Service Users. They include a description of the analyte, and details of analytical methods, uses, causes and follow-up of abnormal results, and any guidelines and systematic reviews.

There are currently 55 monographs listed on the ACB website, and a number in progress, but the list is by no means complete and there are some significant gaps. Many of the original monographs also need reviewing with up-to-date information.

We are also keen to expand this to cross-discipline analytes and to other specialties such as Immunology.

The suggestion is for Trainees to write a monograph under the supervision of a locally based senior colleague who will do an initial review of the publication. Regional Tutors can also be contacted for advice.

The monograph should then be returned to the AMALCs Editor-in-Chief, who will perform a second review before sending it on for peer review by an expert in that field.

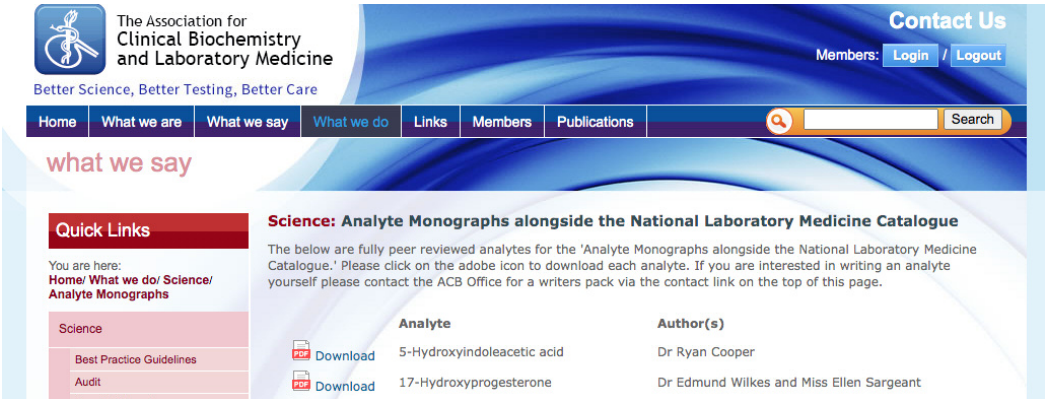
Once complete, the monograph will be published on the ACB website.

The advantage of peer review is that the monograph can be listed under publications on CVs.

Writing one also attracts 5 CPD points.

Any Trainees wishing to write an AMALC should, in the first instance, contact the Editor-in-Chief by email at amalcs@acb.org.uk to request a Writer's Pack and a list of analytes requiring a monograph.

The Analyte Monographs can be found on the ACB website: **http://www.acb.org.uk** ■



Industry Insights: October 2020

Doris-Ann Williams, Chief Executive, BIVDA

After a somewhat calmer summer, and as everyone in the country is acutely aware, COVID-19, and in particular testing for infection, has hit us with a bang!

In September, we were contacted at BIVDA by Dr Emma Stanton, Director of Innovation and Testing Supplies from Track & Trace, to discuss increased demand for some consumables as they prepared for the announcement of the Prime Minister's 'Moonshot'. As I am writing this in mid-September, there is a lot of coverage in the news regarding lack of availability for tests which could lead to schools being closed. We've also heard about a big recruitment push to find scientists with molecular biology experience and graduate trainees to man the testing labs being set up for the winter. It's a virus that continues to throw up new challenges.

We've also hit that period of preparing (again) to leave the EU finally on 31st December so companies are having to revise all their plans from last year in what is looking like a no deal scenario. The IVD Directive will be recognised for regulating IVDs until 30th June 2023 but after that, we will need UK legislation in place which will be identified on packaging as a UKCA mark. However, companies will still be ensuring their products are compliant with the IVD Regulation coming into force in the EU on 26th May 2022 (unless it is delayed by a year as the Medical Device Regulation has been). As existing products can't be grandfathered into compliance with the IVD Regulation, we are expecting that some will be discontinued and I would suspect this would mean they won't be available in the UK either as it would be unlikely to be commercially viable to do so – worth keeping a dialogue going with your suppliers – it isn't a question we have addressed with our members (yet).

At BIVDA we have also been working on the re-start of the NHS which clearly involves diagnostic testing. Many BIVDA member companies have seen a reduction in tests normally supplied by up to 70% as an indirect consequence of the pandemic.

A project we have set up is the BIVDA Expo 2020. This is a way for companies to show their new innovations and diagnostic solutions to the UK end users as they normally would at tradeshows aligned to conferences which would usually have taken place this year. We are trying to give this as much of a normal exhibition feel as possible and anyone will be able to visit the Expo at any time and as many times as they'd like over the three days of the show (10th-12th November). There will be no need to register for the Expo although attending any webinars or other individual initiatives that exhibitors provide may require a registration via a link from their virtual trade stand. The launch has started – see **www.bivda-expo.com**

Next time I write, we will be at the cusp of leaving the EU and presumably at a point of increased COVID-19 infection and huge numbers of tests. I just hope things will be more settled than they are feeling now on a beautiful sunny September day! ■

BIVDA EXPO
10th - 12th NOVEMBER 2020

BIVDA
British In Vitro Diagnostics Association

Announcing the BIVDA EXPO 2020!

Do you feel you have been missing hearing about new innovations in diagnostics from industry? BIVDA is excited to be bringing a virtual tradeshow to the UK, on 10-12 November, so you don't have to miss out!

The cancellation of conferences and allied tradeshows this year has been awful for everyone. So to support the IVD industry BIVDA has decided to bring a tradeshow to UK customers and decision makers in laboratory medicine and across the NHS. We are hoping our members will participate and embrace the spirit of a tradeshow by holding virtual workshops and demos from their stands in the 4 different themed Exhibition Halls – Laboratory, Near Patient Testing, COVID and Essential Services.

Non-members are welcome to exhibit with discounted rates for ACB Corporate Members.

The launch is live on www.bivda-expo.com and you can contact the Expo team on expo@bivda.org.uk

ACB News Crossword

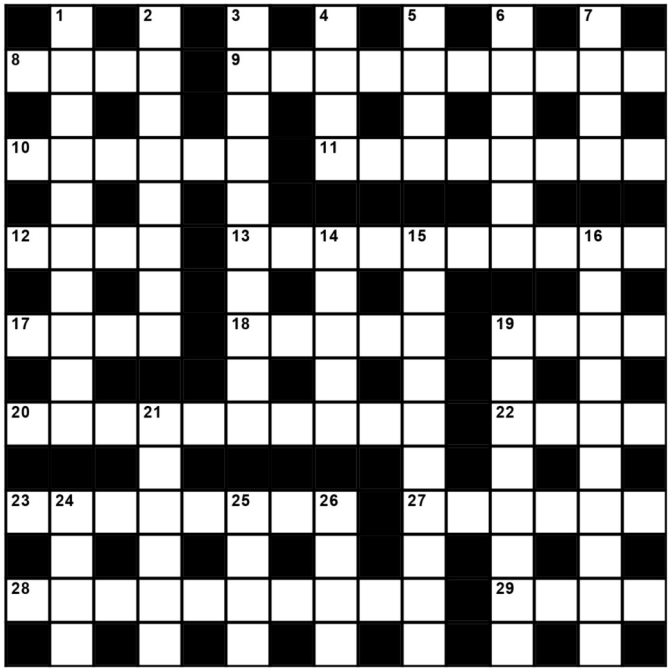
Set by Rugosa

Across

8 Metal press (4)
9 Employed in food transport, drunken hog eats soup without first tasting (10)
10 Cut upset veteran leaving intensive care (6)
11 Information store treated as adaptable after pal made redundant (8)
12 Left in the lurch as condition returns (4)
13 US prosecutor not right about cicatrice from laboratory chemical (6,4)
17 Their blood levels could be reduced by taking breaks from morning meals (4)
18 Kind of alcohol concoction they love opening (5)
19 Main part remains (4)
20 Same test as ordered for possible consequences of cancer (10)
22 Terminal endeavours of you and me (4)
23 Role is to synthesise a hormone (8)
27 Aloof doctor invested in a biological network (6)
28 It deals with hot matters (and cold) (10)
29 Take it to settle and to be accepted (4)

Down

1 Run dataset about low protein effusion (10)
2 Foreign stimulants can provide net gains (8)
3 Open rental arrangement for a child minder (4,6)
4 Operated, wrongly taken to court (4)
5 Spy location (4)
6 Letter for a Greek student (6)
7 Smaller allotments: 10 to make (4)
14 Those unhappy about community's attitudes and aspirations (5)
15 Demonstrate how to mistakenly ill-treat setter and solver (10)
16 Hardening and thickening produced in time (10)
19 Baker's blunders? (8)
21 Did veterinary operation excise vein by mistake? (6)
24 Pieces from a male voice choir resound (4)
25 Graphic on-screen element (4)
26 Leases permits (4)



Solution for August Crossword