

ONE-TO-ONE

THE IKNIFE

The iKnife can detect endometrial cancer, researchers reveal: *p.14*

HAEMATOLOGY

BITE-SIZE MORPHOLOGY

Presenting a new initiative and a range of case studies: *p.29*

MY LAB

POINT-OF-CARE TESTING

A guided tour of the POCT facilities in Milton Keynes: *p.50*

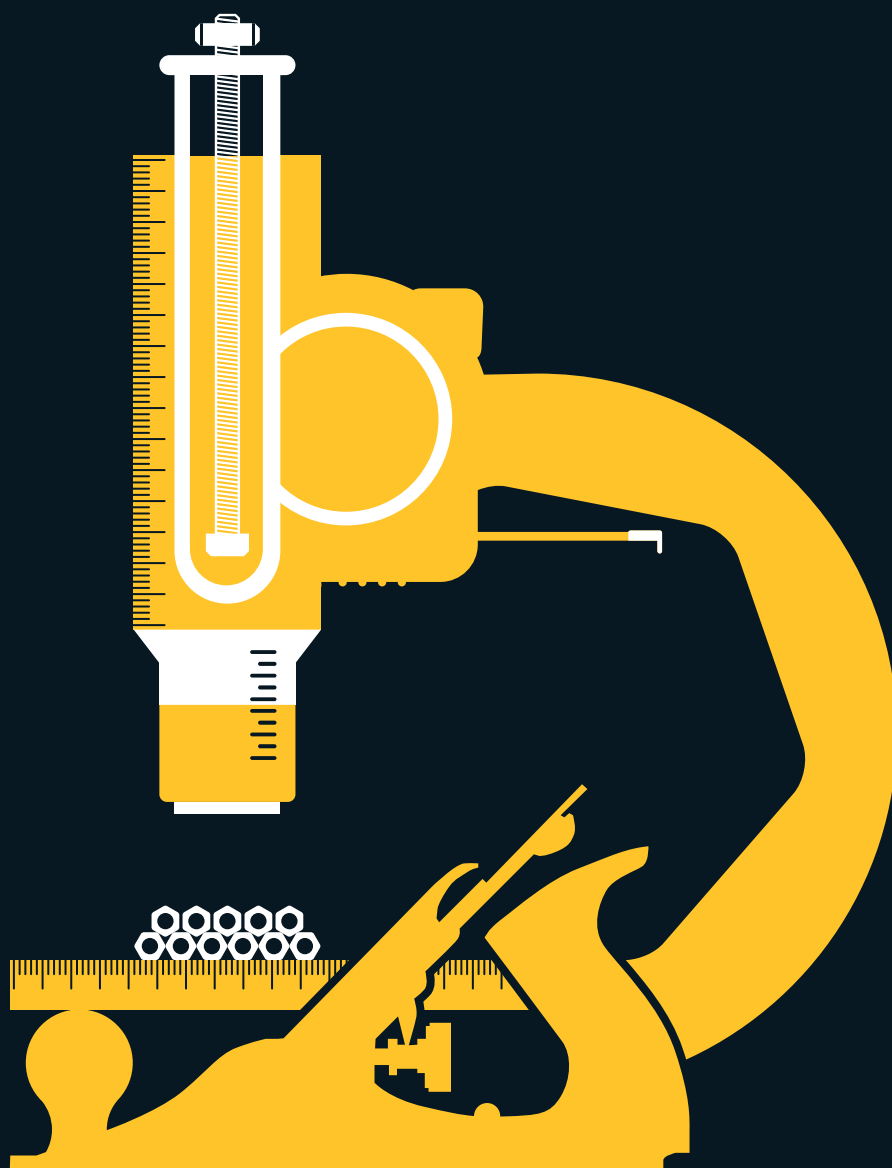
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HOW TO BUILD A LAB

A nuts-and-bolts
guide to creating
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laboratory



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PUBLISHED BY
Redactive Publishing Ltd
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ISSN 1352-7673
© 2023 Institute of
Biomedical Science

PRINTED BY
Warners Midlands plc
Bourne, Lincolnshire PE10 9PH

SUBSCRIPTIONS
Subscriptions are available by
calling 01580 883844

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A.MENARINI
diagnostics

At the time of writing this, there is a lot of press coverage about severe waiting times, ambulances backed up outside hospitals and patients in corridors, and there is a lot of public concern about the state of our healthcare system – as there should be.

What we are not seeing are reports that well-funded diagnostics departments with highly qualified staff are a huge part of the solution to the elective care backlog and to ensuring that patients can flow through the system.

Of course, the press is never particularly solutions oriented. That is the reserve of organisations such as ours – to recognise how tough it is for our members, gauge and measure the extent and depths of the profession's problems and then inform the correct people about the issues, concerns and solutions.

Please be assured, we are working hard behind the scenes to make sure your voices are heard at the highest levels. Alongside our sister organisations, we are raising the profile of the education and training opportunities that our members need – and how this could map onto career progression and alleviate pressure on our services.

We are explaining how registered staff in accredited laboratories provide the safest services – and how appropriate use

REACHING THE RIGHT EARS



David Wells, IBMS
Chief Executive, writes about the work going on behind the scenes on behalf of members.

of diagnostics and the teams behind them can support the wider healthcare system.

It is imperative that the government and the media recognise how central our diagnostics services are to the overall healthcare service – and that patients don't get through queues or receive the care they need in hospital beds without appropriate laboratory testing.

Once this has reached the right ears and impacted the right policies, hopefully this will help to reverse the trend of

underinvestment in the healthcare system and start the currently gruelling prospect of getting us back on track – providing effective, timely healthcare of which we can be proud. 

David Wells
Chief Executive



Institute of Biomedical Science is the professional body for the biomedical science profession.

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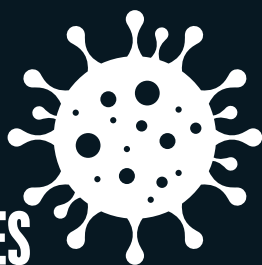
Enabling healthier communities

*Source: Signify Research

SCIENCE NEWS IN NUMBERS



40% OF US COVID CASES



At the start of January, more than 40% of US COVID cases were thought to be caused by XBB.1.5. This makes it the dominant strain in the country.



Just one month earlier, at the beginning of December, it accounted for only 4% of cases. COVID hospital admissions have been rising in the US and the government restarted its free testing programme.



A children's emergency unit has seen twice as many children as it would normally at this time of year, it is reported.

More than 100 children a day were attending the unit at Milton Keynes Hospital in January and overflow areas have been used to cope with numbers.

The increase is thought to be due to flu, Strep A and respiratory viruses, among other viruses and conditions.

6

COVID DEATHS?

At the start of this year, China's official COVID death toll had risen by six deaths since it abandoned "zero-COVID" policies in early December.

This would take China's total fatalities caused by COVID-19 to 5241 for the entire pandemic. However, modelling by the UK health analytics firm Airfinity estimates that there were 110,000 COVID-19 deaths in China since the beginning of December and 11,000 people a day were dying from the disease.

192 PEOPLE AT 22 UK SITES

A world-first NHS trial has begun to assess whether proton beam therapy can help certain breast cancer patients.

The study, which includes 192 people at 22 UK sites, will compare the treatment with standard radiotherapy for those at higher risk of long-term heart problems. Every year roughly 30,000 UK breast cancer patients are offered radiotherapy following surgery.



COVID IN SCOTLAND

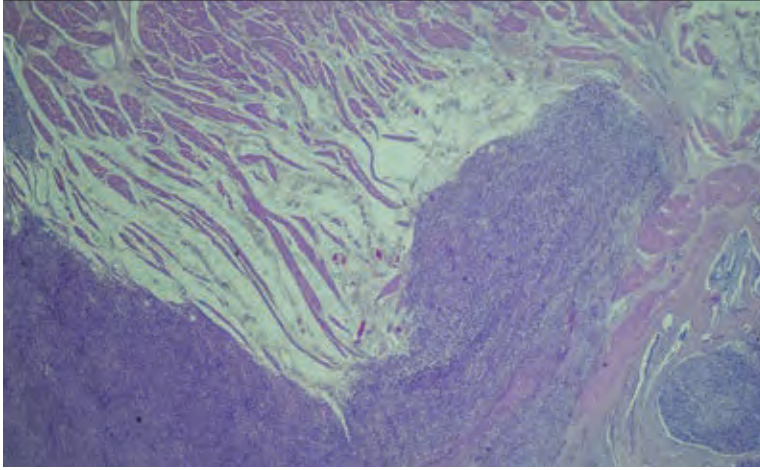
213,100



In the final week of December, the Office for National Statistics (ONS) estimated that the number of people testing positive for COVID-19 in Scotland increased to 213,100.

The figure is roughly the equivalent of one in 25 people – 4.05% of the population – up from 2.49% the previous week. This is the highest rates have been since July 2022, said the ONS.





ULCERATIONS

Gastrointestinal tumour recurrence

US researchers have identified a new feature indicative of the chance of recurrence of gastrointestinal stromal tumours (GISTs).

Clinicians currently rely on examining the prognostic features of location, size and mitotic activity.

But researchers have now identified mucosal ulcerations as a potential fourth feature that could play a role in indicating the chance of recurrence.

“Our findings indicate that ulceration is an independent predictor of the three known features experts use in risk stratification of GISTs,” said

Martin McCarter, lead author. “This finding is significant because it’s new information that might change the future of treatment of this tumour.”

The team examined a database of patients diagnosed with GISTs and completed a chart review to determine the occurrence rate of ulcerations in addition to the other pathological indicators.

Of 310 patients reviewed, 85 had mucosal ulceration with their GIST. Researchers found that patients with ulcerated GIST were more likely to experience disease progression.

→ bit.ly/3QrxshQ

SCIENCE NEWS

COVID-19

VACCINE PROTECTS AGAINST BRAIN DAMAGE

Although the pathology of the respiratory system is the main impact of COVID-19, many patients manifest important neurological symptoms, such as anosmia, headaches, malaise, cognitive loss, epilepsy, ataxia and encephalopathy.

Using a mouse model susceptible to the SARS-CoV-2 coronavirus infection, a team of Spanish researchers has demonstrated the ability of SARS-CoV-2 to infect different regions of the brain and to cause brain damage, and how a vaccine developed at the National Biotechnology Centre in Spain fully protects against infection of the brain.

Lead researcher Juan García-Arriaza said: “The results obtained were spectacular, demonstrating that even the administration of a single dose of the MVA-CoV2-S vaccine completely prevents SARS-CoV-2 infection in all brain regions studied and it prevents associated brain damage, even after a reinfection with the virus.”

→ bit.ly/3ICWdWb



INFECTIOUS DISEASES

CRISPR AND DEVELOPING DIAGNOSTICS

In a first for the genetic toolset CRISPR, a recently discovered protein has been found to act as a kind of multipurpose self-destruct system for bacteria, capable of degrading single-stranded RNA and single- and double-stranded DNA.

The discovery holds potential for the development of new inexpensive and highly sensitive at-home diagnostic tests for a

range of infectious diseases, including COVID-19, influenza, Ebola and Zika, according to the authors of a new study.

Using the high-resolution imaging technique cryo-EM, the team discovered that when this protein, named Cas12a2, binds to a specific sequence of genetic material from a potentially dangerous virus, called a target RNA, a side portion of Cas12a2 swings out to reveal an active site.

Then the active site starts to indiscriminately cut any genetic material it comes into contact with. The researchers discovered that, with a single mutation to the Cas12a2 protein, the active site degrades only single-stranded DNA – a feature especially useful in developing new diagnostics tailored for any of a wide range of viruses.

A test based on this technology could theoretically combine the best features of PCR-based tests



that detect genetic material from a virus (high sensitivity, high accuracy and the ability to detect an active infection) with the best features of rapid at-home diagnostic tests.

→ bit.ly/3IDfVBb

DEEP LEARNING

HOW OLD IS YOUR BRAIN?

A new artificial intelligence (AI) model that analyses magnetic resonance imaging (MRI) brain scans has been developed by a team from the University of Southern California.

It could be used to accurately capture cognitive decline linked to neurodegenerative diseases, such as Alzheimer's, much earlier than previous methods, they claim.

Using a novel AI model to analyse scans, the researchers can detect subtle brain anatomy markers that are otherwise very difficult to detect and that correlate with cognitive decline.

"Our study harnesses the power of deep learning to identify areas of the brain that are ageing in ways that reflect a cognitive decline that may lead to Alzheimer's," said Andrei Irimia, corresponding author of the study.

"People age at different rates, and so do tissue types in the body. We know this colloquially when we say, 'So-and-so is forty, but looks thirty. The same idea applies to the brain. The brain of a forty-year-old may look as 'young' as the brain of a thirty-year-old, or it may look as 'old' as that of a sixty-year-old."

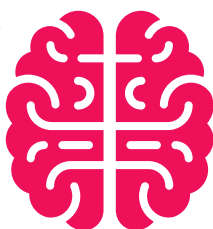
Irimia and his team collated the brain MRIs of 4681 cognitively normal participants, some of whom went on to develop cognitive decline or Alzheimer's disease later in life.

Using these data, they created an AI model called a neural network to predict participants' ages from their brain MRIs.

The results show that the team's model can predict the true (chronological) ages of cognitively normal participants with an average absolute error of 2.3 years.

→ bit.ly/3Xlkwfz

2.3 YRS THE RESULTS SHOW THAT THE TEAM'S MODEL CAN PREDICT THE TRUE (CHRONOLOGICAL) AGES OF COGNITIVELY NORMAL PARTICIPANTS WITH AN AVERAGE ABSOLUTE ERROR OF 2.3 YEARS.



WHAT'S HOT AND WHAT'S NOT



HOT

HAMSTERS

Hong Kong is lifting its year-long ban on the import of hamsters, as it relaxes some COVID restrictions. However, they will have to be tested for the disease.

HOT

BIRDSONG

Nature is to be prescribed by health professionals for the first time in England, following a successful pilot in Scotland. The trial in Derbyshire will see prescribing services offer patients ideas such as listening to birdsong.



NOT

SMALL HOSPITALS

A study by the University of Basel has revealed that excessive bed occupancy in hospitals can lead to higher rates of mortality – and smaller hospitals reach their capacity limit much earlier.



NOT

SALT

Reformulating packaged foods available in Australia to contain less sodium could save about 1700 lives per year, according to a new study



HOT

COVID-19 VACCINES

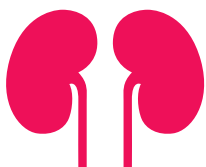
Acceptance of COVID-19 vaccines increased globally, from 75.2% in 2021 to 79.1% in 2022, according to a survey in 23 countries that represent more than 60% of the world's population.



NOT

OBESITY

A history of obesity caused by a high-fat diet produces changes in innate immunity that can promote inflammatory disease – changes that persist even after weight loss and a return to normal metabolism, according to a new study in mice.



POLYCYSTIC KIDNEY DISEASE

ROLE OF GLUCOSE IN A DEADLY KIDNEY DISEASE

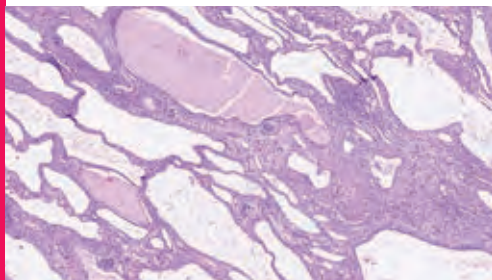
A research team has developed a new approach to better understand the biology of polycystic kidney disease (PKD).

Scientists combined two ways to model the disorder – organ-in-a-dish and organ-on-a-chip technologies – to show the role of glucose, a sugar commonly found in blood, in forming PKD cysts. The results could lead to better ways to test and develop treatments for PKD.

In PKD, tiny tubes (tubules) in the kidneys expand like water balloons, forming sacs of fluid over decades. The sacs, or cysts, eventually crowd out healthy tissue, leading to problems in kidney function and kidney failure. Scientists have identified many of the genes that cause PKD, but much about the disease remains unknown, including how the cysts form.

The group found that the cysts absorbed glucose and pulled in water from fluid passed over them. Although glucose is generally absorbed by the kidneys, glucose absorption has not been connected to cyst formation in PKD.

→ bit.ly/3W11Wbm



RNA SEQUENCING

Diagnostic potential of amniotic fluid cells

A clinical research team from the University of Hong Kong is behind the discovery of applying amniotic fluid cells obtained during 16-24 weeks of pregnancy as a novel sample type for RNA sequencing in prenatal diagnosis.

It is the first proof-of-concept study to demonstrate the potential clinical utility of amniotic fluid cell RNA sequencing in the literature.

A baseline for the gene-expression profile of amniotic fluid cells is established by RNA sequencing over 50 amniotic fluid samples.

Establishment of the gene expression profile is an essential step in applying RNA sequencing to the current selected clinical diagnosis workflow.

The team found that the number of well-expressed genes in amniotic fluid cells was

comparable to other clinically accessible tissues commonly used for genetic diagnosis across different disease categories. They also compared RNA sequencing data of four affected fetuses with structural congenital anomalies with the established baseline to detect potential outliers.

In collaboration with the Technical University of Munich in Germany, a bioinformatics pipeline was adapted to enhance the detection of outliers for subsequent analysis. Further in-depth curation showed that outliers can be identified in genes associated with the corresponding structural congenital anomalies in all four affected fetuses. Identifying the outliers provides more evidence at the RNA level to help diagnosis.

→ bit.ly/3QtPz6I



IMAGES: SCIENCE PHOTO LIBRARY/ISTOCK/SHUTTERSTOCK

UNDER THE MICROSCOPE

This month: Gardening

Do you mean shrubs, planting, pruning... that type of gardening?
Yes, the very same.

Why are we looking at it here?

The first-ever randomised controlled trial of community gardening, which was funded by the American Cancer Society, shows it

boosts fibre intake and physical activity – two known ways to reduce risk of cancer and chronic diseases – while decreasing stress and anxiety.

Sounds pretty obvious. Didn't we know this already?

Some small observational studies have found that people who garden tend to eat more fruits and vegetables and have a healthier weight. But it has been unclear whether healthier people just tend to garden, or gardening influences health.

How did this study work?

A total of 291 non-gardening adults, average age 41, were recruited from the Denver area. More than a third were Hispanic and more than half came from low-income households. In Spring, half were assigned to the community gardening group and half to a control group that was asked to wait one year to start gardening.

What did they find?

By autumn, those in the gardening group were eating, on average, 1.4 grams more fibre per day than the control group – an increase of

about 7%. The gardening group also increased their physical activity levels by about 42 minutes per week.

What now?

The researchers hope the findings will encourage health professionals, policymakers and land planners to look to community gardens, and other spaces that encourage people to come together in nature, as a part of the public health system.

Where can I read more?

Visit bit.ly/3QrsFwS



DRUG DELIVERY SYSTEMS

Replacing injections with pills?

A new paper explores a better way of delivering medications that does not require injections but could be as easy as swallowing a pill.

Coauthor Dr Christine Beeton said: “We explored the possibility of using the probiotic bacterium *Lactobacillus reuteri* as a novel oral drug delivery platform to treat rheumatoid arthritis in an animal model.”

Previous work from the Beeton lab shows that a peptide, or short protein, derived from sea anemone toxin effectively and safely reduces disease severity in rat models of rheumatoid arthritis and patients with plaque psoriasis.

However, peptide treatment requires



repeated injections, reducing patient compliance, and direct oral delivery of the peptide has low efficacy.

Beeton joined forces with Dr Robert A Britton, a Professor of Molecular Virology and Microbiology, who has developed the tools to genetically modify probiotic bacteria to produce and release compounds. The team bioengineered the probiotic *L. reuteri* to secrete peptide ShK-235 derived from sea anemone toxin.

Daily delivery of these peptide-secreting bacteria dramatically reduced clinical signs of disease.

The findings provide an alternative delivery strategy for peptide-based drugs and suggest that such techniques and principles can be applied to a broader range of drugs and the treatment of chronic inflammatory diseases.

→ bit.ly/3GwJuBL



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TECH NEWS

NYKODE THERAPEUTICS

MANUFACTURING PARTNERSHIP

Nykode Therapeutics, a clinical-stage biopharmaceutical company, has entered into a strategic manufacturing partnership with Richter-Helm to supply plasmid DNA for Nykode's wholly owned and partnered product portfolio. "As a leading manufacturer of DNA vaccines, they will provide the long-term expertise and capacity needed to support our ambitious growth and pipeline development," said Mette Husbyn, Nykode Therapeutics Chief Technology Officer.

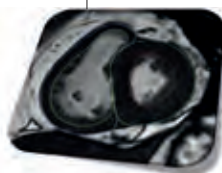
→ nykode.com

SHEFFIELD TEACHING HOSPITALS

CARDIOVASCULAR DIAGNOSTICS

An artificial intelligence (AI) tool that provides a quick and comprehensive analysis of the heart's function could improve future cardiovascular care by aiding earlier diagnosis and giving more detailed information about the heart's function. Developed by researchers at Sheffield Teaching Hospitals NHS Foundation Trust and the University of Sheffield, the tool detects chambers of the heart on MRI images – performing in seconds tasks that would involve lengthy manual analysis.

→ sth.nhs.uk



LGC CLINICAL DIAGNOSTICS

DIABETES KIT

LGC Clinical Diagnostics announced the addition of Cystatin C to Maine Standards Validate diabetes kit for the Roche cobas platforms for easy, fast, reliable documentation of linearity and calibration verification. The product – with the analytes Beta-Hydroxybutyrate, C-Peptide, Insulin, Fructosamine, and now Cystatin C – is formulated in human serum, using the CLSI EP06 "equal delta" sample preparation method, and provides five distinct concentrations. Validate diabetes test kits are frozen liquid and ready to use – dispense the solution from each dropper bottle, directly into five sample cups, and run in replicates to verify the assay's reportable range.

→ lgcgroup.com

NUDT15 Nudix Hydrolase 15



Black Country Pathology Services

- Mutations in NUDT15 are associated with poor metabolism of thiopurines and increased risk of myelosuppression
- c.415C>T mutation associated with NUDT15*2 and NUDT15*3 haplotypes
- Increased prevalence of c.415C>T mutation in Asian populations
- Recommended that NUDT15 genotyping is performed prior to initiation of thiopurine drugs (ALLtogether guidelines)
- Analysis performed by real-time polymerase chain reaction (RT-PCR)

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Black Country Pathology TV News



THE KNIFE THAT CAN DETECT WOMB CANCER

For the first time, researchers have shown how the iKnife can accurately detect endometrial cancer before treatment decisions are made.

About 9700 women and people with gynaecological organs are diagnosed with endometrial cancer every year in the UK. The diagnostic process typically involves sending large numbers of people with abnormal, often postmenopausal bleeding, to urgent assessment clinics for investigations. Usually a scan is performed and a biopsy taken for histological diagnosis.

The aim is to rule out endometrial cancer and thankfully more than 90% of people going through the procedure will not receive a diagnosis. But the result of this pathology can take some days and weeks to come back. Everyone awaiting results will likely be very anxious and those with cancer will face delays in treatment.

"We wanted to find a way of making the diagnosis on the biopsy at the point of taking the tissue," says Professor Sadaf Chaem-Maghani, Chair of Gynaecological Oncology and Honorary Consultant in

Surgical Gynaecological Oncology at Imperial College London, who has led a research team in diagnosing womb cancer using electrosurgical methods.

Diagnostic accuracy

The team used rapid evaporative ionising mass spectrometry (REIMS), the iKnife, to assess biopsy tissue – taken from the uterus using a device called a Pipelle – from 150 women who had endometrial biopsies for abnormal vaginal bleeding. The iKnife works by cutting through tissue while delivering an electrical current, heating as it cuts. It then captures and analyses the vapour that is released to spot any "cancer flags" in the

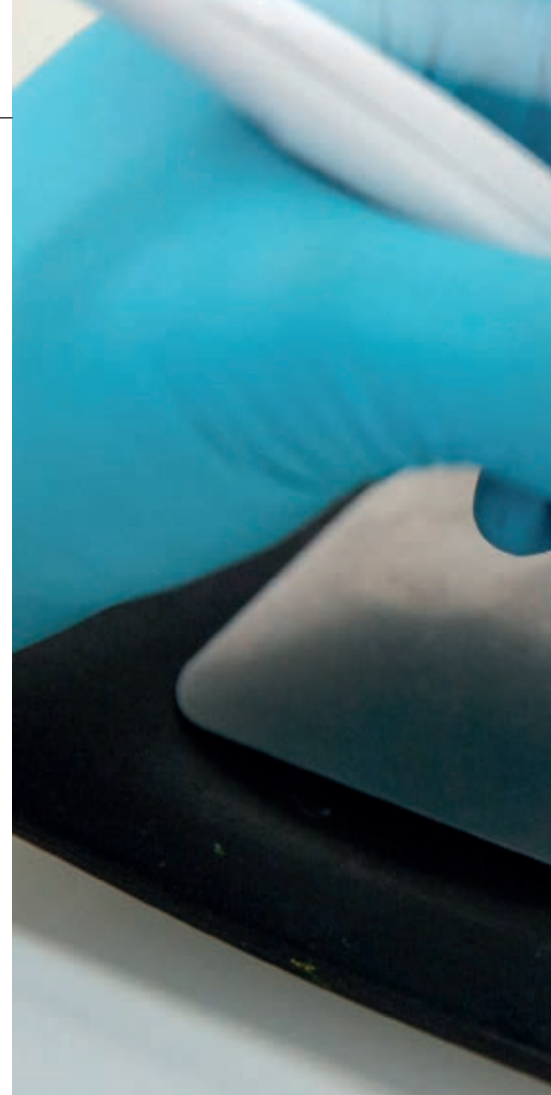
"It captures and analyses the vapour that is released to spot any 'cancer flags'"

phospholipids in the tissue sample.

"We used the iKnife to burn through the tissue to obtain a mass spectroscopy spectra from the tissues," Ghaem-Maghani explains. "We constructed a diagnostic model using the REIMS software and the endometrial tissues and compared the results to histopathological routine diagnostic tests."

The team found the results from the iKnife could differentiate between normal and cancerous womb tissue with a diagnostic accuracy of 89% compared with the "gold standard" for making tissue diagnosis – biopsy. "The sensitivity, specificity, positive predictive value and negative predictive value were 85%, 93%, 94% and 85%, respectively," Ghaem-Maghani says.

"This means that if the iKnife suggests there is endometrial cancer, we can be quite confident that this is the case, and instigate further tests and start the process of arranging treatment for the patient. We can also reassure women that do not appear to have cancer, so that they do not live with anxiety of their diagnosis





for further weeks of uncertainty.”

The iKnife has previously been used for intraoperative diagnosis of resection margins and Chaem-Maghamsi and colleagues have also used the instrument for intraoperative assessment of ovarian masses. “However, this is the first time that the instrument has been used to make a diagnosis in the clinic prior to decision-making regarding treatment,” she adds. “To have a technology that may confidently match the performance of histopathology is groundbreaking.”

The accuracy of the technology is “outstanding”. “The amount of tissue obtained from endometrial biopsies is very small and often very scanty and mostly liquid,” Chaem-Maghamsi says. “We had to use a second-pass biopsy for the research part of the diagnosis, making the tissue even less adequate. Despite these issues, the iKnife was very accurate in predicting the tissue diagnosis.”

Improving outcomes

Like many women in the profession, Chaem-Maghamsi juggles work as a

clinician, scientist and mother of two girls. “Balancing different demands on my time has on occasions been challenging. Having supportive work and family environments has helped manage these demands, almost successfully.”

She is passionate about women’s health, researching gynaecological cancers for the last 20 years. “It is a real privilege to look after women in the clinic but also be able to advance science, no matter how small the step may be, to provide them with better care and survival outcomes,” she says.

Incidence of endometrial cancer has risen significantly in the recent years and Chaem-Maghamsi points to the pressures on the NHS meaning there are more delays in diagnosis for women with abnormal bleeding. “I wanted to be able to change the way these women experience care and help improve their outcomes. If endometrial cancer is diagnosed early, it is cured in the majority of cases, so it is essential that we aim for a diagnosis as quickly as it is accurately possible,” she adds.

The research team is planning a large

SADAF GHAEM-MAGHAMIS



- ✓ **2019** Professor of Gynaecological Oncology at Imperial College Healthcare NHS Trust
- ✓ **2015** Began work as private gynaecologist and colposcopist, 132 Harley Street and Consultant Gynaecologist, the Wellington Hospital and Platinum Medical Centre, and as reader in Gynaecological Oncology, Imperial College London
- ✓ **2006** Consultant Gynaecologist and Gynaecological Oncologist (honorary), Imperial College Healthcare NHS Trust, and Senior Lecturer, Imperial College London
- ✓ **2004** Undertook specialist training in northwest Thames region in obstetrics and gynaecology, which was accredited by the Royal College of Obstetricians and Gynaecologists. Became BSCCP-accredited Colposcopist
- ✓ **2002** Honorary Consultant at Queen Charlotte's and Chelsea Hospital, Imperial College NHS Trust
- ✓ **1997** Awarded PhD in Immunology
- ✓ **1990** Qualified from The London Hospital Medical School (University of London).

clinical trial in multiple centres across the UK and Europe to assess the diagnostic accuracy of the technology in a “real world” setting in different centres. The hope is that the technology will be integrated in clinical care pathways and will accelerate diagnosis of endometrial cancer.

“It is too soon to say that we will not need pathological diagnosis, but to be able to make a fairly accurate diagnosis at the point of taking the biopsy will have a significant impact on clinical practice and the way we treat these women,” she adds. The result should be earlier diagnosis and expedited treatment of endometrial cancer, leading to better outcomes and better patient experience. 



THE BIG QUESTION

THIS MONTH WE ASK

“What can we as a profession do to support the NHS?”



Tony Cambridge

Lead Biomedical Scientist, Blood Sciences
and Point of Care Testing

University Hospitals Plymouth NHS Trust

Many healthcare services are reliant on the work our profession delivers every hour of every day. If we don't deliver, optimal patient care cannot be provided. One of the most important things we can do as a profession is to safeguard the future of our services by developing today's workforce and securing the workforce of the future.

Knowledge, experience, and specialist skills need to be nurtured across our profession, especially with the recruitment and retention issues that some organisations are experiencing. Clear routes of progression, with equal opportunities for all, will improve retention, attract new recruits and deliver succession plans.

Attention is required in developing new roles to react to current demands and emerging threats. As the population gets older and treatments more effective, there will be year-on-year increases in workload, driving more automation across the specialties with adoption of clinical decision-making tools and artificial intelligence. This will bring opportunities for those interested in technical, data analysis and IT-related roles.

However, as personalised and precision medicine experience increased adoption, the profession needs to plan now to create and support the specialist roles of the future. We need to develop workforce plans that will meet future challenges.



Bamidele Farinre

Consultant Biomedical Scientist
Locum

Our beautiful biomedical science profession plays a significant role in so many aspects of healthcare. The roles of biomedical scientists are integral to patient care and wellbeing in supporting their immediate clinical team decisions regarding diagnosis, treatment and prognosis. Without biomedical science, the diagnosis and treatment of numerous illnesses and diseases would be unquestionably more complex.

The NHS has been suffering staff shortages for years due to unsatisfactory workforce planning and insufficient funding and infrastructure. Increasing workload pressures are becoming unsustainable and declining wellbeing creates an environment of stress, burn out and mental health and wellbeing issues.

As a profession, we will continue to do our part in creating a sustainable NHS of the future by making every contact count. This is achieved by using every contact with an individual to maintain or improve their mental and physical health and wellbeing where possible. Managers can support by identifying where healthcare professionals' skills and knowledge for making every contact count need development and working with public health and education and training partners to support this.

We should also all share learning about improving the public's health and wellbeing and reducing health inequalities, and seek to learn from others.



Azuma Kalu

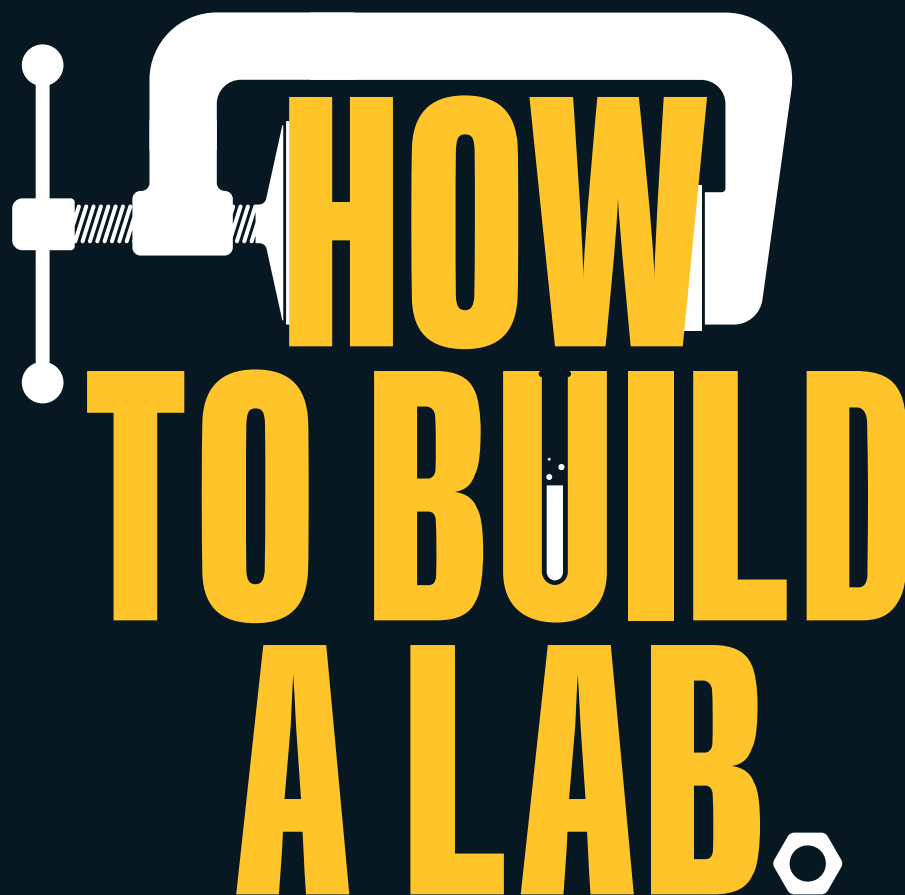
Laboratory Manager, Specialised Clinical
Chemistry & Toxicology

Sheffield Teaching Hospitals
NHS Foundation Trust

As a profession, we have to do more to modernise and respond to the changing digital world. The practice of the profession is so intertwined with technology that our productivity is not only moderated by the equipment but also the connectivity that enables the equipment to interact and transmit results. To assist in the delivery of diagnostic activity levels that will support plans to address NHS backlogs and the diagnostic waiting time, more commitment is needed from the profession to push for better technologies and connectivity.

With more access to dietary options, leading to an increase in metabolic and cardiovascular conditions, increase in life expectancy and consequent rise in old age-related health conditions, there is enormous financial stress on the NHS to meet many of the healthcare-related demands. We have to continue to innovate to increase our productivity and become more sustainable with access to remote reporting, consolidation of specialist services, lean management, focusing on environmentally friendly practices. By so doing, we will support the achievement of a cost-effective NHS.

With steps such as capacity building, modernising our technologies and improved connectivity, switching off the computer after each working day and implementing environmentally friendly practices, the profession can do a lot to support NHS priorities.



HOW TO BUILD A LAB.

My name is Alix Costello. I recently obtained a post at Blackpool Victoria Hospital as a Senior Biomedical Scientist following completion of the Scientist Training Programme in Histopathology. One of my first roles after starting in the department was to help coordinate a laboratory move while maintaining our diagnostic services. Yet, to get to this stage, a lot of hard work had been going on behind the scenes to facilitate the procurement of the new histology laboratory within just fourteen months. This article will provide an insight into the planning and design process of building a new laboratory and explore some of the bespoke equipment pieces designed to modernise our histology practices.

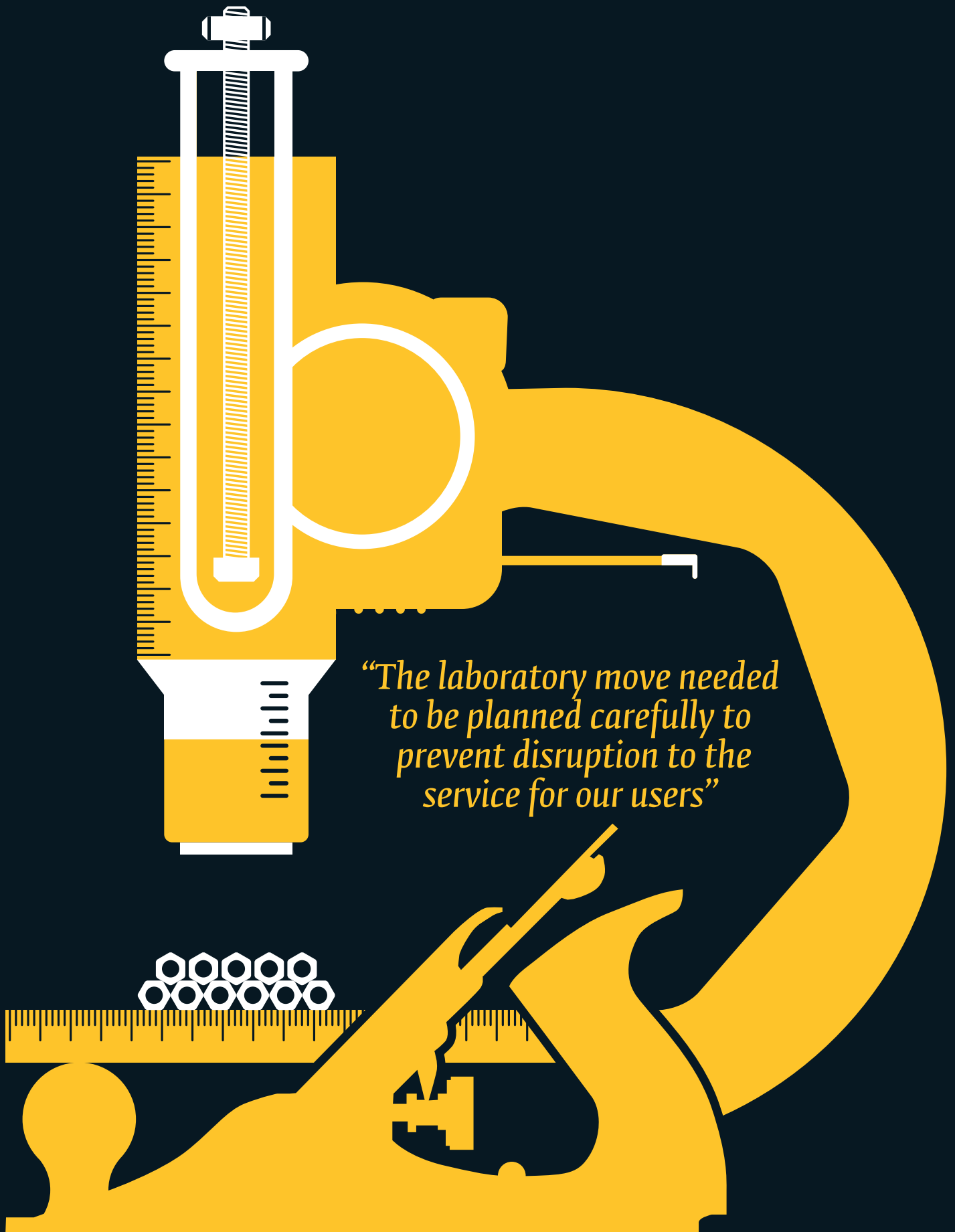
Why and how

In April 2021, a decision was made that the 50-year-old, tired histology estate

Senior Biomedical Scientist
Alix Costello with a nuts-and-bolts guide to creating a new histology laboratory, with insights into some of the new and exciting apparatus now available for modernised working practices.

was no longer a suitable workspace for the histology team. A project began to design a new, modernised laboratory in a disused space adjacent to the existing histology laboratory. Once the decision had been made to move forwards with the plans for the new laboratory, it was clear that to meet and futureproof the needs of the department, specialist design consultation would be necessary. This was important to not only maximise the physical design of the laboratory workspace, but to ensure that the services installed would help safeguard staff, not only to current standards but also to future evolving regulations for containment and working practices.

A specialist design consultancy was appointed and tasked with designing the facility but they worked closely with the histology team to ensure that design concepts would be technically and practically feasible. Utilising specialist knowledge and experience from the histology team, the design





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03

consultancy worked to create an open-plan workspace that would facilitate lean working practices and maximise the estate's potential. Following the design process, the tendered specialists in laboratory equipment finalised designs for bespoke histology equipment with significant focus on local exhaust ventilation (LEV) to safeguard staff, not only to current standards but also to future evolving regulations.

In histology, technicians commonly work in close proximity to hazardous reagents, most notably formalin, xylene and alcohol. Despite the dangers associated with using these reagents, (particularly formalin, which is a carcinogen, mutagen and sensitiser), they are essential to histology practice. It was therefore vital that a strong element of the new laboratory design process and focus for the new equipment was resilience for both established and future health and safety practices. With this in mind, several new, built-in pieces of equipment were commissioned, which transformed and modernised our working practices whilst maximising safety for the histology staff.

Bespoke equipment

01 Cut-up space: The old histology laboratory had one bench dedicated to surgical dissection work and one bench for handling biopsy specimens. During busy periods this led to bottlenecks as the workflow was restricted by the spatial constraints. In the new laboratory, we now have three benches available for surgical cut-up and one dedicated to biopsy specimens. Each of the benches is height adjustable to maximise user safety.

02 Specimen storage: In the old laboratory, we had limited storage for histology specimens and the storage areas were confined within the surgical/biopsy cut-up rooms. This could make specimen disposal quite a difficult task. However, in the new laboratory, each cut-up area now has its own wall of ventilated storage space with adjustable shelving units. This has significantly increased our storage space and has made it easier to manage specimen disposal.

03 Containment Level 3 (CL3) room: Blackpool Victoria Hospital is a cardiothoracic hospital so the laboratory receives a high volume of lung frozen section work to facilitate intra-operative diagnosis. In the old laboratory, our cryostat was located in the very cramped cut-up room. Additionally, having just one cut-up bench meant that surgical dissection work had to pause to enable frozen sections to be performed on the ventilated work bench. Working with fresh lung tissue carries an infection risk, therefore the new laboratory project seized the opportunity to build a CL3 room for handling frozen-section work. The CL3 room can be used for handling infectious tissue specimens and acts as a spare cut-up bench.

04 Specimen disposal area: In our original lab, specimen disposal was performed on a ventilated bench in the corner of the biopsy room that was cramped and no longer fit for purpose. Our new specimen disposal unit has built in LEV and capacity to store formalin waste barrels with alarmed sensors to prevent overflows.

05 Formalin dispensing unit: In the old laboratory, formalin was previously diluted manually to create the required concentration for tissue fixation. Even with PPE and ventilated units, manual mixing of formalin was hazardous due to the risk of spillages. Now, we have a bespoke formalin dispensing unit that mixes and releases an on-demand supply of pre-diluted formalin with users only having to load concentrated bottles into the system.

06 Staining facilities: We also now have LEV units surrounding our special stains workbench, routine staining and coverslipping equipment. This has further improved safety for our staff and reduces exposure to hazardous reagents.

07 Clean room: Finally, as Blackpool Victoria Hospital is a cardiothoracic centre, we receive lung biopsies and resections that require molecular pathology investigations. In 2018, we started a molecular pathology service and we now provide this service for lung cancer patients across all four trusts in the Lancashire region. As part of our service, we are able to test tumour tissue for mutations to guide patient treatment. The technique that we use utilises real-time PCR so it must be performed in a clean working environment to reduce risk of cross-contamination and aberrant results. In the old histology laboratory, the molecular pathology investigations had their own "clean" microtome but otherwise preparations took place in the same room as immunohistochemistry due to spatial constraints. As part of the



new laboratory project, a separate “clean” room was built into the immuno-histochemistry workspace to enable sample preparation for PCR testing to be performed separately.

Move-in day

In June 2022, after 14 months of planning and building, the new histology laboratory was ready for use. While everyone was excited and raring to get started in the new workspace, the laboratory move needed to be planned carefully to prevent disruption to the service for our users. Suppliers and engineers were scheduled for equipment moves, which occurred gradually over a two-week period. The old laboratory and the new laboratory were adjacent to each other, so we were able to work across both spaces for a couple of weeks while the move took place. We also wanted to use this opportunity to adapt our laboratory workflow to maximise workspace and embed lean working practices. By the end of June, we had completely moved into our new laboratory and had started to get to grips with new ways of working.

Laboratory opening

Later in the summer, we had our official laboratory opening, including the cutting of a red ribbon. The President of the Royal College of Pathologists Professor Michael Osborn travelled to Blackpool to officially open the new laboratory. I also marked the official opening by creating a piece of artwork, which is now hanging by the front door of the new laboratory.

Benefits of the new laboratory:

Six months later, I can definitely say that the entire histology team feels very

fortunate to be working in this new environment. The new laboratory has brought about a number of benefits:

- An open-plan workspace that has enhanced team communication
- A fresher and brighter laboratory that has improved staff working conditions
- Greater space for storage and equipment has meant that individuals can perform their roles more efficiently
- Increased cut-up bench capacity has significantly reduced bottlenecks within the department, helping to improve diagnostic turnaround times
- Brand new LEV systems throughout the laboratory have enhanced safe working practices and futureproofed the department against evolving safety standards
- Increased bench space has facilitated an increase in desktop computers, which will reduce reliance on paper documentation.

Conclusion

In summary, the 14-month long project has already had significant benefits for laboratory staff and service users. Our

previous laboratory was built to suit cellular pathology practices from the mid-1900s, practices that are quite unrecognisable from today's automated machinery and growing, increasingly complex workload.

We recognise that we are very lucky to now work in a purpose-built facility with bespoke safety mechanisms that complement our working practices. However, we realise that for the majority of histology laboratories this is not a reality. By writing this article we aim to provide an insight into some of the new and exciting histology apparatus now available for modernised working practices. We would be happy to share our learning from the project with other histology teams going through a similar process. **BMS**

Alix Costello is a Senior Biomedical Scientist and Clinical Scientist at Blackpool Victoria Hospital



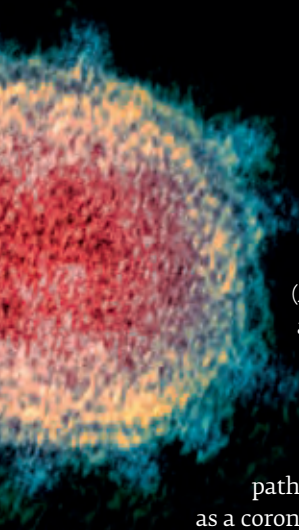
RECENT ADVANCES AND UPDATES IN BIOMEDICAL SCIENCE

Deputy Editor
Guy Orchard
summarises a
review paper and
looks at planned
special issues of
the *British Journal
of Biomedical Science*.

With this latest synopsis we focus on infectious disease and more specifically a review paper by AD Blann and R Heitmar, who discuss the viral disease known as COVID-19, caused by SARS-CoV-2. This infection is now the leading cause of death by a single infectious agent worldwide.

The review examines certain components of the pandemic: its origins, early clinical observational data, global and UK-focused epidemiology, vaccination, variants, and the subsequent rise and impact of long COVID.

We start the story on 12 December 2019, when health authorities in the city of Wuhan in the Hubei region of China reported an unusual idiopathic pneumonia, some cases progressing to respiratory failure, which is the major



criterion of an acute respiratory disease syndrome (ARDS). Nearly all of the first cohort of patients worked at a local seafood market. The candidate pathogen was confirmed

as a coronavirus, named

2019-nCoV. Subsequent analysis showed a 79.6%–87.1% sequence matching with known SARS-CoV viruses MERS-CoV and SARS-CoV, whose intermediate hosts are the dromedary and civet cat. Later evidence suggested that the virus may have originated in bats, though alternative hosts such as civet cats and pangolins were suggested. Genomics have identified the entry point of the virus into cells as an envelope spike protein interacting with angiotensin-converting enzyme 2 (ACE2) on the target cell membrane. The virus was re-named SARS-CoV-2 in March 2020.

From January 2020, the World Health Organization (WHO) published weekly Situation Reports on the infection and on 12 February referred to the disease as COVID-19.

Perhaps one of the most frightening aspects about the infection from these early reports was its transmissibility, with a reproduction rate (R) of 2.5, which is considerably higher than influenza ($R = 0.93$). The most significant clinical finding was severe viral infection of the lungs, and there was a case fatality rate of 11%.

The laboratory findings linked to ICU admission were increased neutrophil count, D-dimers, creatine kinase, lactate dehydrogenase, urea, aspartate aminotransferase, high-sensitivity troponin I, and procalcitonin (all $p < 0.01$).

The disease became global a year after the initial cases (12 December 2019),



with around 76.2 million people infected (0.97% of the world's population), causing 1.8 million deaths (2.3% of those infected). In the early stages, the spread of the virus and its effects were hampered by the non-standard definitions of infection and related deaths and lack of an accurate and accessible test for either the virus itself or proof of infection (i.e. the presence of serum antibodies). However, as the pandemic developed, objective clinical definitions and the wider availability of scientific testing provided more reliable data.

Pathological findings

Blann and Heitmar go on to explain the infection spread throughout Europe. Larger cohorts studying the clinical manifestations and susceptibility morbidity related issues began to reveal that the most significant contributory morbidity conditions included coronary heart disease, dementia, diabetes, hypertension, heart failure, cancer and arrhythmia.

In terms of the full extent of pathological findings related to the infection, Blann and Heitmar explain that within the lungs, interstitial lung fibrosis (ILF) before a COVID-19 infection brings a hazard ratio (HR) [95% confidence interval (CI)] of 1.6 (1.17–2.18) for survival in those with obesity and ILF. A long-term consequence of acute lung damage is irreversible ILF, which is now regarded as a likely component of

long COVID infections. In terms of findings on inflammatory mediation, increased levels of markers of the acute phase response (typically, C-reactive protein), and levels of cytokines (including IL-6, IL-8, IL-10 and tumour necrosis factor- α), led to the concept of the cytokine storm. This principle suggests the broader pathological effects of a SARS-CoV-2 infection are mediated by excessive levels of pro-inflammatory cytokines. Thrombotic complications and subsequent coagulopathy were also reported, particularly in critically ill patients.

Throughout the world there were experienced cycles of infection, described as waves, some at different times within the UK compared to those globally. The key metrics provided by the WHO are the number of confirmed UK cases and number of deaths. During the three recognised waves in the UK, over 54,000 excess deaths were recorded in the first wave, over 43,000 in the second, and over 21,000 in the third (the latter up to April 2022). However, in the first 12 weeks of 2022, there were 141,000 deaths, compared with 175,000 in 2021 and an average of 149,000 in the five-year pre-COVID-19 period. Time may reveal that there will be a fourth wave. The infection is, as with influenza, destined to become endemic and calls for annual vaccinations.

Vaccinations

In terms of vaccinations by early April 2022, the WHO reported





276 vaccines in development, 109 in clinical testing, and 24 in use, although four dominate in the US and Europe. Two are based on viral vectors (Oxford/AstraZeneca and Janssen/Johnson & Johnson), and two

deliver mRNA within a lipid nanoparticle (Pfizer/BioNtech and Moderna). With regard to adverse side effects, in an analysis of 48,159 individuals, 22.6% vaccinated with an anti-SARS-CoV-2 product reported an adverse event. This figure is exceeded by the 25.7% reporting an adverse event after influenza vaccination and 25.1% after a herpes zoster vaccination.

In the case of long COVID, symptoms persist long after the acute phase of the illness and manifest with a wide selection of complaints. Symptoms may be present in various physiological areas – pulmonary, haematological, renal, endocrine, cardiovascular, neuropsychiatric, gastrointestinal, hepatobiliary, and dermatological – pointing to the need for a multi-disciplinary approach to dealing with the infection.

In the future, the early identification of those at risk of possibly fatal disease progression remains an important goal, with laboratory markers and imaging being important. Regarding the former, microRNAs (miRNAs) may be an additional useful tool. The early prediction that the pandemic would last until the spring of 2021 proved incorrect, with 7.9 million UK hospitalisations and 260,000 deaths. The full extent to which it will have a major and long-lasting negative effect on the individual and society in the UK and globally remains to be seen.



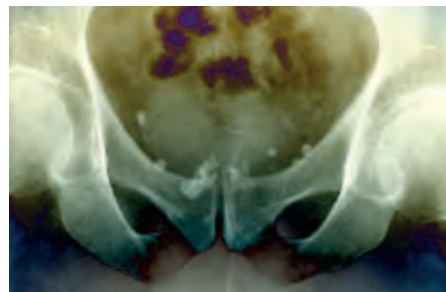
SPECIAL ISSUES

Advances in Cancer Diagnosis and Treatment



Brief mention should also be given to the journal's planned five "special issues" which include "Advances in Cancer Diagnosis and Treatment" edited by Mark Hajjawi, Michael R Lodomery, Qiuyu Wang and Nadege Presneau. Following on from the effects of the COVID-19 pandemic, we have seen a significant rise in the pressures placed on healthcare providers to deal with the backlog of cancer cases. This special issue highlights the latest research and developments in the diverse field of cancer, and how these innovations move our understanding forwards, leading to improvements in the diagnosis, monitoring and treatment of these conditions. Included will be a number of review papers, original articles and short communications.

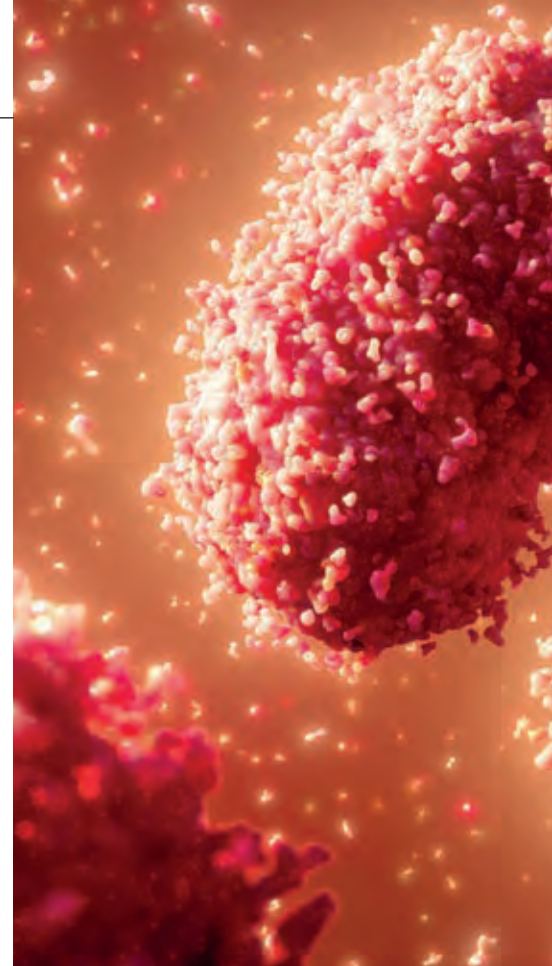
Andrology

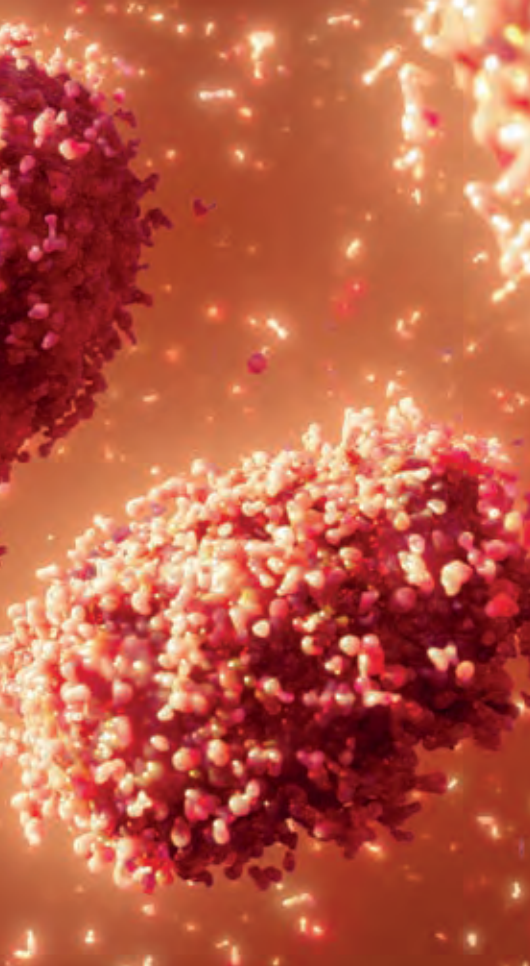


The second special issue is on the subject of "Andrology", edited by Stuart Benjamin,

John Long and Susan Valerie Kenworthy. Andrology is the study of male health, most often associated with fertility investigations and semen. This area of medicine is often overlooked and research limited, particularly within clinical laboratories and diagnostic services. This special issue aims to promote the field of andrology, taking account of recent advances and good practice while pushing the field forward, integrating other allied disciplines. A range of papers, particularly those where other scientists can learn, develop and promote this developing field, are invited. Topics to consider include (but are not limited to):

- Teratozoospermia index (TZI) and clinical value
- Methods used for semen analysis
- Clinical andrology
- World Health Organization 2021 guideline (sixth edition) and the impact on research
- Retrograde ejaculation
- Genetic causes of infertility in men
- Reactive oxygen species and the prognostic value in fertility
- DNA fragmentation testing
- Patient-centred approach in andrology
- Current trends.





Zoonoses and One Health

The third special issue is “Zoonoses and One Health” edited by Sarah Pitt, Emily Goldstein and Patrick Kimmitt. One Health is an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals and ecosystems. This special issue solicits manuscripts on perspectives, challenges and recent advances in the fields of One Health, diagnostics, pathology and epidemiology of zoonotic diseases. Submissions are welcome on:

- Mycobacteria
- Mpox virus
- *Plasmodium knowlesi*
- *Borrelia* spp.
- West Nile Virus
- Avian influenza viruses
- *Leishmania* spp.
- *Leptospira* spp.
- *Echinococcus* spp.
- Other emerging zoonotic infections.

Original research, reviews, case reports and biomedical science in brief articles are all invited.

Women in Biomedical Science

Special issue four is on the subject of “Women in Biomedical Science”, edited

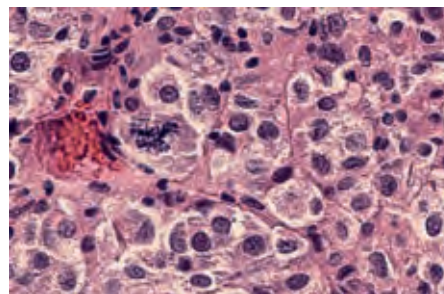
by Yuh-Fen Pung, Qiuyu Wang, Brigid Lucey and Sheri Scott. This issue aims to celebrate the achievements of women in the field of biomedicine and inspire the next generation of female scientists.

At present, less than 30% of researchers worldwide are women. Long-standing biases and gender stereotypes are discouraging girls and women away from science-related fields, and STEM research in particular. However, science and gender equality are essential to ensure sustainable development, as highlighted by UNESCO. The special issue will highlight the diversity of research performed across the entire breadth of biomedical science led by women, and present advances in theory, experiment and methodology with applications to compelling problems. Submissions are welcome on (but not limited to):

- Cancer
- The microbiome
- Cardiovascular disease
- Infectious diseases.

We also invite authors to include a section on personal reflections on life in academia within their manuscript.

Dermatopathology



Finally, we have special issue five “Dermatopathology”, edited by Guy Edward Orchard. The diagnosis of skin disease requires both clinical and pathological expertise, which subsequently define the



“Long-standing biases and stereotypes are discouraging women from science-related fields”

laboratory tests required. Central to these investigations is the biopsy, allowing key architectural features of the skin disease to be analysed, emphasising the importance of dermatopathology to the treatment of skin disorders. This special issue of the journal will include a number of review papers, original articles and short innovation communications. These articles will explore why dermatopathology is often key in the diagnosis of skin disease and also explain its relationship and important links to other specialised laboratory services that help define and classify cutaneous disorders.

Topics will include:

- Immunodermatology
- Mycosis
- Molecular diagnostic methods
- Innovations in dermatopathology
- Unusual applications of Mohs micrographic surgery
- Predictive and prognostic markers of melanoma
- Immune checkpoint inhibition in melanomas
- Dermatopathology in alopecia.

We look forward to receiving manuscript submissions on these areas, and other related topics. 

For more information on the *British Journal of Biomedical Science* and to access previous papers, visit bit.ly/BJSjournal

Blood transfusion laboratory practice is heavily regulated due to the potential to cause serious harm or death to patients. When adverse events occur, there are far-reaching consequences affecting the patient, the family and causing an emotional and professional impact on staff involved and impacting the organisation's reputation. Transfusion in the UK remains relatively safe, with a transfusion-related risk of death of 1 in 53,193 and of serious harm of 1 in 15,142 components issued in the UK, according to the 2020 Serious Hazards of Transfusion (SHOT) report. However, avoidable errors account for the majority of errors. The 2021 SHOT report states laboratory errors and near-miss events accounted for 18.1% of all SHOT reports in 2021.

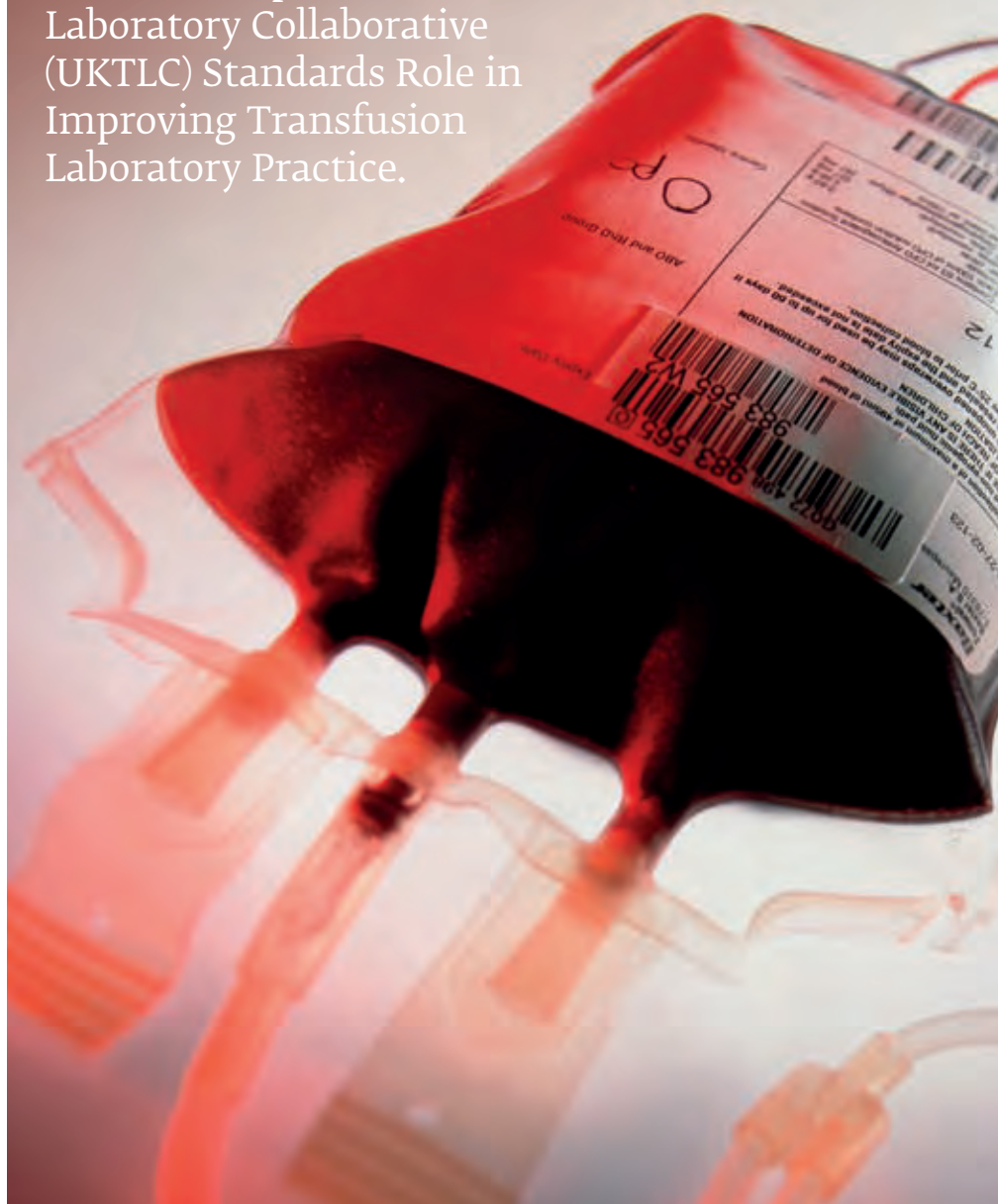
The UKTLC's background

In 2006 it was recognised that there were recurrent deficiencies in transfusion laboratories across the UK resulting in unacceptably high levels of reports submitted to SHOT. The SHOT team launched an initiative working with the British Blood Transfusion Society (BBTS), IBMS, Royal College of Pathologists (RCPATH), UK National External Quality Assurance Scheme (UKNEQAS) and the NHS England National Blood Transfusion Committee (NBTC) and its equivalents in Scotland, Wales and Northern Ireland, which led to the formation of the UKTLC. The UKTLC principally aims to:

- promote dialogue between the collaborative stakeholder organisations to achieve and maintain a consistent advisory approach for organisations invested in achieving and/or maintaining the regulations and standards for transfusion practice as outlined by but not limited to the Blood Safety and Quality Regulations (BSQR), the Good Practice Guidelines (GPG), Joint UK Blood Transfusion and Tissue Transplantation Services Professional

LABORATORY TRANSFUSION STANDARDS

Transfusion Laboratory Managers
Kerry Dowling and **Jennifer Davies**
look at the updated UK Transfusion
Laboratory Collaborative
(UKTLC) Standards Role in
Improving Transfusion
Laboratory Practice.





“Challenges continued with the recruitment of suitably trained scientists”

- Advisory Committee (JPAC) and the British Society for Haematology (BSH)
- influence positive changes within the transfusion community through the collaborative identification and promotion of best practice
 - provide a collaborative forum able to deliver guidance to the UK transfusion community to improve patient safety and care within transfusion
 - publish national standards in relation to staff education, qualifications, knowledge and competency within UK transfusion laboratories
 - provide a framework for transfusion laboratory staff capacity planning and staff mix.

Development of standards

To understand the status of laboratory practices and the challenges faced by those working in transfusion the UKTLC carried out surveys in 2007 and 2008 that revealed a lack of formal transfusion knowledge, that lead transfusion scientists were not available in core hours due to shift working and that most laboratories with agreed capacity plans were routinely running services below the levels required by their own plans.

In the absence of any formal guidance in 2009 the UKTLC developed a series of recommendations that were designed to help hospitals achieve the minimum standards of proficiency and practice set by the Health and Care Professions Council (HCPC) and the Blood Safety & Quality Regulations (BSQR 2005). These standards defined the minimum expectations for staff levels, skill mix, qualifications, training and competency, and the use of information technology. This level of clarity in the requirements for safe practice had not been available previously and provided management with a tool to benchmark against a gold standard.

It was hoped that compliance with these recommendations would lead to a significant

reduction in transfusion laboratory errors, however, a 2012 SHOT report indicated an error reduction rate of only 12%, far below the 50% agreed and expected following the 2009 recommendations for best practice. A 2013 UKTLC survey demonstrated that a significant number of laboratories had not addressed many of the recommendations and that IT errors appeared to be increasing. The general view was that “although the recommendations were excellent, management saw them as recommendations that carried no mandatory action requirement”. To counter this in 2014, the recommendations were redrafted as evidence-based standards supported by the Medicines and Healthcare products Regulatory Agency (MHRA) to be used by the inspectorate as part of the inspection programme. Later, the UK Accreditation Service (UKAS) also came to adopt the standards for accreditation purposes in transfusion laboratories.

The 2023 standards

A 2019 UKTLC report noted that challenges continued with the recruitment of suitably trained biomedical scientists, and with funding and time for training and education. A survey of laboratory culture in the same year noted that some staff felt under pressure to present an unrealistic impression of their laboratory’s compliance with the GPG to appear more in line with the BSQR and the MHRA’s blood compliance report. The report exposed the pressures affecting staff and raised



the importance of a just culture in the provision of a safe service. The COVID-19 pandemic saw further challenges for transfusion laboratories and the wider health service, particularly in terms of staffing, recruitment and training.

All this has led to the UKTLC spending the last year revising and updating their standards. The UKTLC now includes representatives from the IBMS, MHRA, NHSBT, the NHS in each of the four home nations, RCPATH, SHOT, UKNEQAS and UKAS, all of whom have contributed to the review of the minimum standards.

The 2023 revision updates the recommendations, considering current and future changes in blood transfusion laboratory practice. They provide a minimum level of standards, focusing on patient safety and key areas of practice and core skills for staff. The UKTLC aimed to provide a set of updated standards that were pragmatic and realistic for implementation whilst continuing to improve patient safety and support laboratory staff.

The standards fall into four areas

- **Staffing:** Including staffing levels, capacity planning, quality management systems and appropriate specialist staff
- **Qualifications, knowledge and skills:** For Scientists at Band 7 and above, Scientists at Band 6 and Band 5, Scientists in training and support staff, Staff supporting the Blood Transfusion Service, training and competency assessment and resources for training
- **Information technology:** Analysers, Laboratory Information Management Systems (LIMS) and Electronic Transfusion Systems
- **A just culture:** Staff should be encouraged to report errors, near-miss events, suggestions for improvements and potential risks that may affect patient safety. Processes for reporting, and learning from, excellence and



incident investigation processes, which must include consideration of human factors and systems thinking, avoiding application of blame on individuals.

Minimise risk

The standards are targeted at blood transfusion consultant leads, pathology directors, blood transfusion laboratory managers, operational managers and blood transfusion focused groups and should be used to support safe practice. The standards can be used to benchmark and then escalate staffing and IT issues supported by an evidence-based approach. They should be used in conjunction with guidance relating to transfusion laboratories at individual organisation level or within pathology networks.

It is expected that they will help minimise the risk of laboratory errors, through supporting and encouraging effective and appropriate education, training, competency assessment and utilisation of staff, and the use of technology in hospital transfusion laboratories within the current UK legislative requirements for blood transfusion services. These revised standards are supported by the IBMS and the RCPATH and will be utilised in regulatory inspections by the MHRA and assessments under ISO 15189 standards by UKAS.

To help transfusion laboratory staff and management use the new standards in 2023 the UKTLC plans to increase its social media presence,

“It is crucial staff are provided with the knowledge and skills to perform their roles effectively”

taking part in online education events and developing practical support and resources for lab managers. A gap analysis tool, capacity plan examples, guidance for matching equivalency to IBMS qualification learning outcomes will be published on the UKTLC webpage hosted by SHOT, along with the results of the 2022 UKTLC survey.

The UKTLC purpose and vision is to support laboratory staff and improve safe transfusion practice. This is carried out by providing tools such as the UKTLC standards and survey findings. The UKTLC is modernising its approach and would be keen to hear ideas from laboratory managers regarding ways that the UKTLC could help improve safety and support laboratory staff within their remit. You can find the UKTLC on Twitter or contact one of this article's authors.

In the ever-changing healthcare environment, with a backlog in workload and advancing technology, it is crucial that laboratory staff are provided with the knowledge and skills to perform their roles effectively. Safe practice must be supported with access to adequate equipment and IT. The UKTLC standards provide the backbone on which a safe transfusion service must operate. **IBMS**

Kerry Dowling is Transfusion Laboratory Manager at University Hospital Southampton NHS Foundation Trust and Chair of UKTLC.

Jennifer Davies is Transfusion Laboratory Manager, Royal Devon University Healthcare NHS Foundation Trust and Deputy Chair of UKTLC.



BITE-SIZE MORPHOLOGY

Nicki Lawrence, Principal Biomedical Scientist and Advanced Practitioner, introduces “Bite-Size Morphology” and presents a number of cases.

Morphology, in some laboratories, is thought to be a dying art with newer investigations such as immunophenotyping and cytogenetics replacing expert review of the peripheral blood film. As a consequence, there may be deskilling of biomedical scientists as the focus is shifted to these newer techniques when making a definitive diagnosis. Coupled with old-school morphologists retiring, this has led to a lack of experienced morphologists within some departments. Morphology, though, is still needed to make a working

diagnosis; it's quick, relatively cheap to make a blood film and within an hour of the sample arriving in the laboratory, you can make a preliminary diagnosis on a wide range of disorders, including life-threatening conditions such as acute promyelocytic leukaemia or microangiopathic haemolytic anaemia.

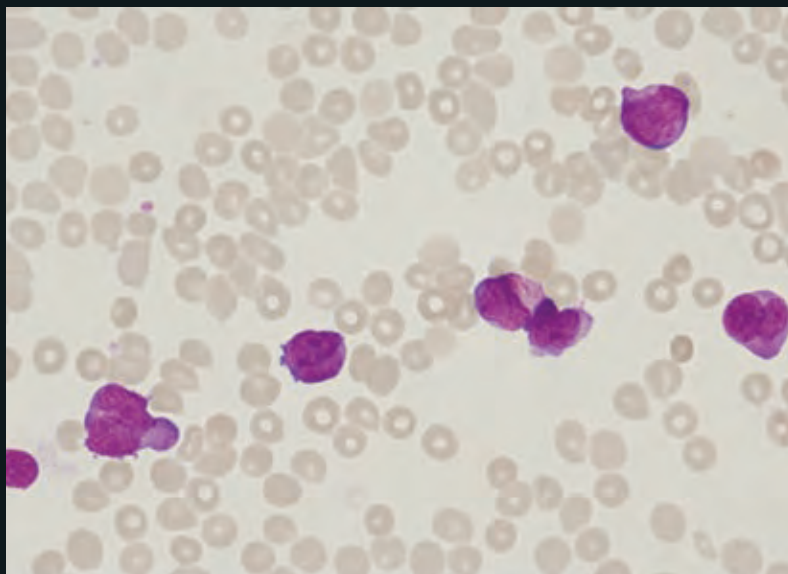
As an Advanced Practitioner in Morphology and our departmental Haematology Training Officer it is unsurprising that I am hugely passionate about morphology and education. Each week I present at our Clinical

Haematology Morphology MDT Meeting and I wanted to provide something similar for biomedical scientists within our department, exposing them to a wide range of cases, both routine and more obscure, so that they can develop their morphology skills further. With the introduction of pathology networks across

England I also wanted to extend this to our network laboratories in Leighton and Macclesfield.

I started presenting “Bite-Size Morphology” in July 2022 and decided on a 30-minute format during the working day, which was available to all staff via





CASE STUDY 1

A 71-year-old male presented with shortness of breath.

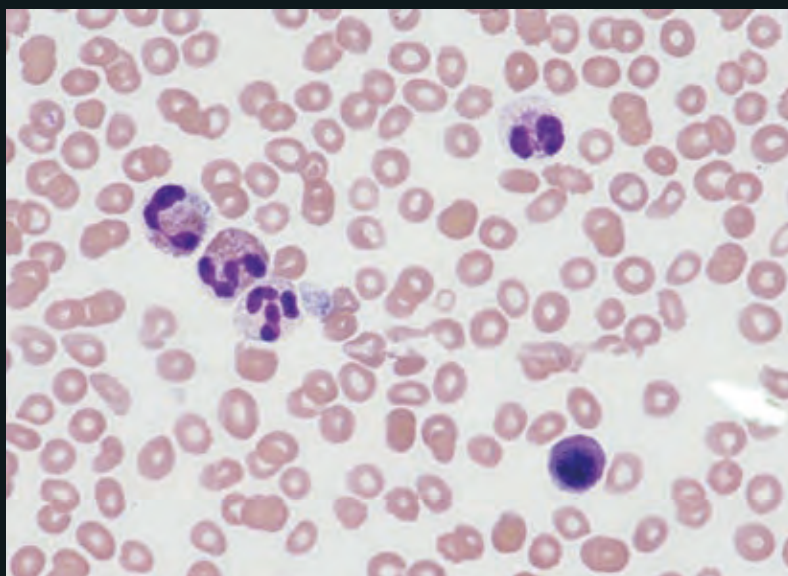
Numerous abnormal promyelocytes, some with Auer rods, can be seen on the image (x600 magnification). The blood film was in keeping with a diagnosis of acute promyelocytic leukaemia (APL). Urgent FISH for *PML::RARA* was sent but no evidence of *PML::RARA* or a *RARA* gene rearrangement found. No evidence of an insertion/duplication within *NPM1* gene found but 21bp and 45bp internal tandem duplications within *FLT3* found (*FLT3*-ITD).

As the morphology was consistent with APL, further investigations were undertaken showing a cytogenetically cryptic *PML::RARA* gene rearrangement and the patient classified as having APL with *PML::RARA* fusion.

WBC $54.3 \times 10^9/L$

Hb 111 g/L

Platelets $34 \times 10^9/L$



CASE STUDY 2

A 63-year-old female with a history of autoimmune haemolytic anaemia controlled with steroids presented with mild eosinophilia, which rapidly increased. The patient was admitted to RSUH from local DGH and transferred to ITU for multiple pulmonary emboli, pleural effusions, Stevens-Johnson syndrome (SJS) and suspected haematological malignancy. Patient was later confirmed as Stevens-Johnson syndrome, ovarian cancer and a clinically significant variant associated with myeloid neoplasia was found in *DDX41*. Image (x600 magnification) shows multiple eosinophils with some degranulation and a single nucleated red blood cell.

WBC $50.8 \times 10^9/L$

Hb 84 g/L

Platelets $17 \times 10^9/L$

Neutrophils $10.67 \times 10^9/L$

Eosinophils $34.53 \times 10^9/L$

Teams. By using Teams I'm able to record each session and save them on our network drive so that anyone who is not able to attend can watch again later. Each session is themed, with three or four cases reviewed at a time.

We've covered a variety of morphology, including lymphocytes with cytoplasmic projections or prominent nucleoli, eosinophilia, polycythaemia vera, leucoerythroblastic blood films and the underlying cause, essential thrombocythaemia, and parasites

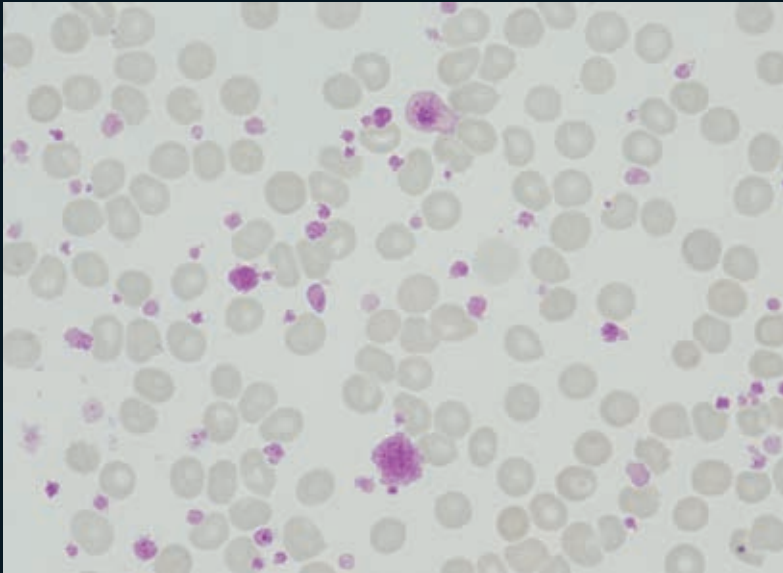


including Loa Loa, *Plasmodium falciparum* and Chagas disease to name a few. In each session

I provide the history of the patient but we also discuss the pathophysiology behind each diagnosis with a question and answer session to end. All staff can email me and suggest future topics too or ask questions without an audience. At the end of the year I provide a CPD certificate stating which sessions were attended or watched. Particularly interesting cases are discussed in-depth in my monthly lunchtime seminars.

I'm determined to keep our workforce skilled in morphology and as we continue through 2023 I'll be sharing more of our Bite-Size Morphology cases via my twitter account @Promyelocyte13 so that other biomedical scientists can also see a host of interesting cases. For now, presented here are four morphology case studies. 

Nicki Lawrence is Principal Biomedical Scientist Advanced Practitioner in Morphology and Haematology Training Officer at University Hospitals of North Midlands NHS Trust.



CASE STUDY 3

A 90-year-old female presented from her GP with severe headaches controlled by paracetamol.

The image (x600 magnification) shows thrombocytosis with platelet anisocytosis (variation in platelet size) and large and giant platelets can be seen. Based on the FBC results, normal inflammatory markers, normal iron studies, and blood film morphology, it was highly suggestive of a myeloproliferative neoplasm and I suggested referral to the Clinical Haematology department for further investigation. Initial screening for *JAK2* V617F mutation was negative and the extended MPN panel was instigated with *MPL* and *CALR* mutations also tested. The patient was positive for *MPL* mutation.

WBC $8.4 \times 10^9/L$

Hb 104 g/L

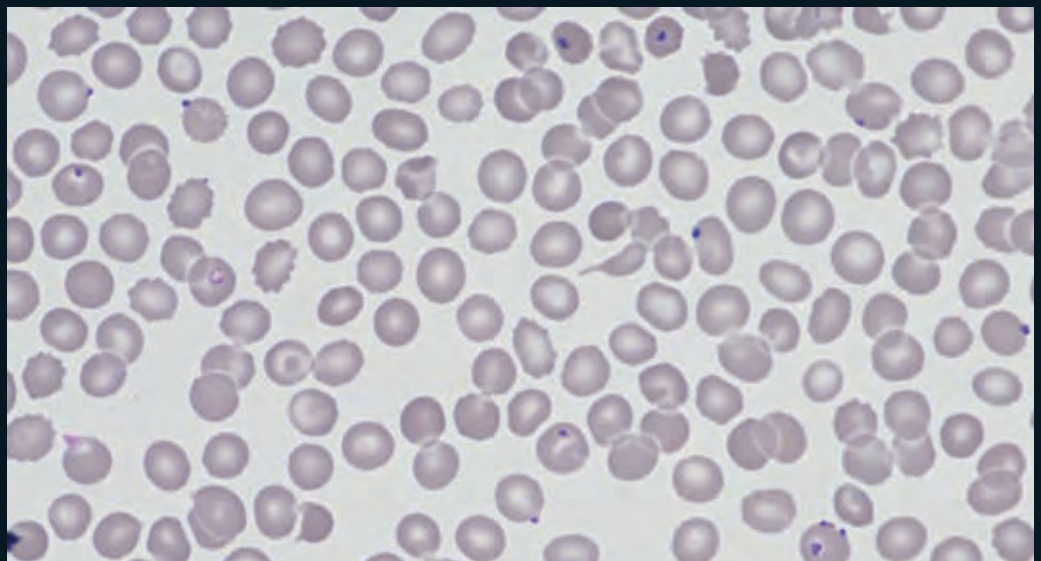
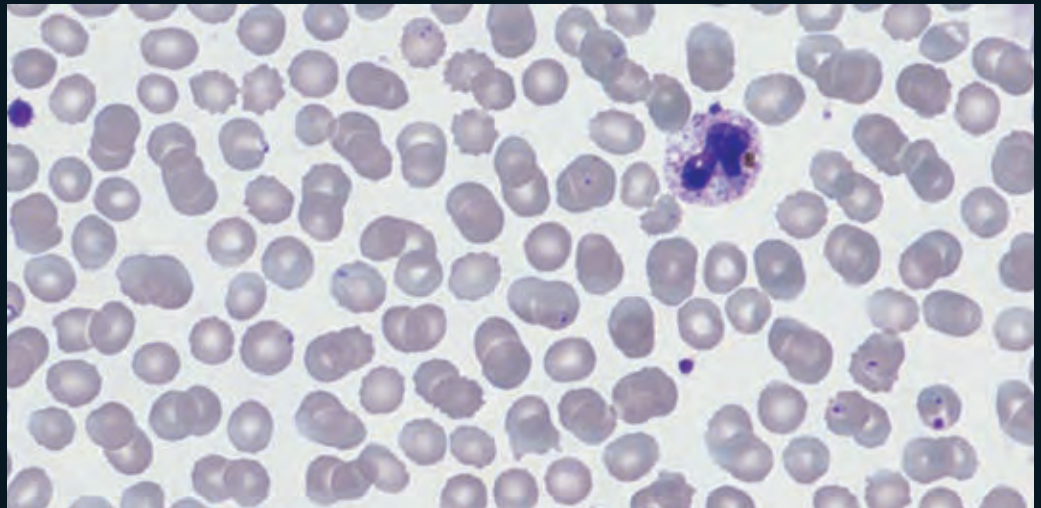
Platelets $1089 \times 10^9/L$

CRP <4 mg/L

CASE STUDY 4

A 64-year-old male returned from Ghana one day previously presenting with headache, aches, fever and chills, now with shortness of breath. He did not take any malaria prophylaxis. Past medical history of splenectomy for road traffic collision. The top image (x600 magnification) shows numerous red cells containing *Plasmodium falciparum* trophozoites with a parasitaemia of 8.8% confirmed by London School of Hygiene and Tropical Medicine. The single neutrophil present contains malaria pigment. There are also some echinocytes present (red blood cells with evenly distributed frilly projections) in keeping with the patient's acute renal failure.

The patient was treated with artesunate and the usual mode of parasitised red cell clearance – splenic pitting – was not possible due to his previous splenectomy. The parasites, therefore, remained within the peripheral blood but the morphology changed. The bottom image (x600 magnification) shows shrunken trophozoite cytoplasm with only the chromatin dot visible in the majority of the trophozoites.



DEGREE APPRENTICESHIPS FUTUREPROOFING THE BIOMEDICAL SCIENCE WORKFORCE

To mark National Apprenticeship Week, Course Leader **Ian Davies** and graduate **Katie Preston** reflect upon the first five years of the Healthcare Science Degree Apprenticeship programme at Staffordshire University.

Our apprenticeship journey started in 2017, almost through serendipity, with the approval of the Healthcare Science Practitioner degree apprenticeship standard coinciding with local discussions to develop a new, sustainable part-time biomedical science route to support in-service progression as part of our IBMS re-accreditation. The combination of prescribed knowledge, skills and behaviours format within the apprenticeship standard fitted well with the blend of academic study, vocational learning and competency assessment commonplace in biomedical scientist education. Similarly, the employer-focused origins of the apprenticeship standards echoed the employer needs emanating from our local discussions, highlighting the need for a programme with both the academic content and rigour of a traditional biomedical science

degree, but also with an applied focus upon agility and the development of workplace skills. Additionally, the ability to access funding through the Apprenticeship Levy meant the programme did not dig into departmental budgets or employee finances, allowing an affordable route to higher education for staff unable to self-finance or reduce their working hours.

Challenges

Our next step was to develop a delivery model that was pedagogically sound but also accessible to work-based learners. Using our experiences of delivering postgraduate distance learning programmes combined with lived experience of employer needs we proposed a blended approach combining asynchronous online education, study days and work-based learning, which allowed

learners and employers to flex their studies around the operational demands of fluctuating workload and shift working. An early decision was to deliver the programme separately from our standard on-campus undergraduate degree which, on reflection, proved to be a pivotal choice; by bringing together learners from a wide variety of pathology departments we were not just able to tailor the content and delivery to suit their needs and build upon their experiences, but were able to develop this into a rich collaborative “connected pathology” network of academics, learners and pathology teams.

Being one of the first adopters of degree apprenticeship education for biomedical scientists was not without challenge. The compliance requirements to access government apprenticeship funding are robust

Below.
Katie Preston,
apprenticeship
graduate and
biomedical
scientist
in virology.



and enforceable, as would be expected when accessing money from the public purse. These grew further in 2021 when degree apprenticeships came within the scope of the education regulator Ofsted, a level of continual external scrutiny seen rarely within higher education. Despite the steep learning curves and regulatory burden involved, our institutional experience grew and our practices evolved, with His Majesty's Inspector of Education's inspection report commenting upon the "culture of excellence" within the Healthcare Science Practitioner apprenticeship.

Katie Preston, one of the first graduates from the course and now a Biomedical Scientist at University Hospitals of North Midlands, takes up the story.

I never looked back

"I was just about to leave work to begin my biomedical science degree for the second time when I heard about the new healthcare science apprenticeship that was about to start. I managed to get an interview and as there was a vacant post for a Medical Laboratory Assistant in virology, that was made available for the apprenticeship. I was successful in being

appointed into the post and onto the course. I often wondered in the early days if I had made the right decision not to return to university full-time and whether I was missing out on anything such as the university experience, but once 12 months had passed and I was settled both in the lab and on the course, I never looked back.

"As the first cohort, we felt like we were a part of something special. We were able to really connect with the lecturers and each time we visited the university we had time for discussions, getting to know one another and helping to shape the



*"We were able to
really connect
with the lecturers
and each time we
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for discussions"*

course for future years.

"Alongside the excitement of the new course, we gained invaluable work experience and the essential HCPC registration that has led us all to be successful in obtaining biomedical scientist posts. I compare my experience to what could have been if I had gone back to university full-time, and I believe it is the on-the-job experience that has set us apart and allowed us all to be so successful in such a short space of time since graduating. The inclusion of the HCPC registration is also a bonus as it can be so hard with all the pressures laboratories are under for them to be undertaken in house.

"Like everyone, we were struck with the huge impact of the pandemic both in our working life and study life. The disruption to our normal practice was exciting at first, especially working in the virology department, eagerly awaiting the first COVID samples and practising new techniques. Fortunately, thanks to a great effort from our course leaders, we continued with the course as planned with little disruption and graduated pretty much on time.

Right. The new 2022 intake of Healthcare Scientist apprentices from NHS Pathology Providers across England

Below. Leyla Sghaier, apprenticeship graduate and biomedical scientist in cellular pathology

CASE STUDY:

Leyla Sghaier

Biomedical Scientist, Scarborough Hull York Pathology Service

I've been interested in science and human health since school and started a biology degree, but due to the illness of a close family member I withdrew and returned home to be near and to help.

After school I had a range of jobs, including a police emergency call handler, but after having some time away to travel I decided I wanted to follow my interests in science so applied for a job as a medical laboratory assistant in microbiology.

During my years of working in the laboratory I learnt about the role of a biomedical scientist and became confident in the technical aspects of the work.

I had thought about going back to university, but I suppose life got in the way, and so when the opportunity of being part of the first cohort of degree apprenticeship students at Staffordshire University was offered, I was overwhelmed.

During the course, I was successful in becoming a band 4 associate practitioner and then shortly after graduating I was successful in gaining my current role as a biomedical scientist in cellular pathology. This has been a big change but has also helped me develop my knowledge and skills in another discipline, advancing my practice as a biomedical scientist.



"Completing the apprenticeship has given me lots of other opportunities too. I've been asked to contribute to multiple career and STEM blogs, and I've written lessons for Laboratory Science T-Levels. I know other students have had similar experiences and we have all been asked to promote the course through our employers on multiple occasions."

A vital strand

With eight graduates now working as biomedical scientists at the trust and a further 11 apprentices on the programme, Katie Berger, Pathology Practice Educator for the North Midlands and the Training Manager at Katie's Trust, commented on how vital the apprenticeship has become for their workforce planning: "The accessibility of the apprenticeship programme provides opportunity for those who may not otherwise be able to access higher education, developing a sustainable workforce of diverse experiences and skills."

Our first cohort of apprentices graduated in 2021 with all now registered as biomedical scientists and contributing to the pathology workforce. Matt Reeve, one of five apprentices from Hull and East Yorkshire on the pioneering first cohort, agrees. Reducing his hours to undertake a degree was not an option, so the flexibility to study whilst remaining in full-time employment opened up career options that would otherwise be unavailable. Although learning throughout the pandemic brought challenges, Matt also enjoyed the excitement of being part of something new and being able to help shape the course. Alongside Matt, all his fellow Hull cohort are now working as biomedical scientists within their trust.

For Sharon Molland, now a biomedical

scientist in haematology at the Black Country Pathology Service, a major benefit was being part of a cohort of colleagues from pathology labs across the country. "Although completing a degree whilst working full time is a challenge, being part of a group of learners from similar professional backgrounds meant I didn't feel out of place returning to education; we shared collective experiences, especially during COVID, and could build a network to swap insights into our own disciplines to add context to the taught material. After working as a cytology screener since 2008, the apprenticeship enabled me to progress first to a biomedical scientist in cytology and now to have the confidence to advance my career by developing my skills and knowledge towards a specialist post in haematology," she said.

Heart of healthcare

From our original intent to support local workforce development, the course has now grown to over 130 current apprentices and 38 graduates from 35 NHS trusts and pathology providers across England. At a time where laboratories continue to face unprecedented operational and workforce demands, degree apprenticeships provide a valuable and sustainable pipeline of biomedical scientists delivering science at the heart of healthcare.

National Apprenticeship Week runs from the 6 to 12 February, and you can follow all the activities on Twitter through the hashtag #NAW2023. More information on the IBMS support for apprenticeships can be found at bit.ly/3Xw2l7c 

Ian Davies is the Healthcare Science Course Leader at Staffordshire University. **Katie Preston** is a Biomedical Scientist at University Hospitals of North Midlands NHS Trust.

MAURITIUS CENTRAL LAB: A REPORT

IBMS Past President **Allan Wilson** reports on a visit to the Central Lab, Victoria Hospital in Caudes, Mauritius last September, before his tenure drew to a close.



During summer 2022, a group of Medical Laboratory Technologists (MLTs) from Mauritius approached the Institute to discuss membership of the IBMS. After assessment of the qualifications around 50 MLTs were admitted as licentiates, members or fellows. The MLTs have formed an association called the Medical Laboratory Technologist Association (MLTA) with a president (Meethun Gunputh) and a secretary (Oomar Jeetun).

The main contact for the negotiations was Viki-Rao Nalaya, who is a Fellow of the Institute and has previously worked in the UK.

By sheer coincidence I had already booked a holiday in Mauritius with my long-suffering wife who of course was

delighted that I had now “volunteered” to meet with representatives of the Mauritian MLTA and to visit the Central Lab in Caudes.

The Mauritian MLTA

The officers from the MLTA are obviously highly motivated and determined to push for the changes they think are required to enhance the role and status of the MLTs within the Mauritian laboratory service.

Tour of lab and meeting with staff and the lab director

I visited the lab and met with some of the MLTA officers and other MLTs in the lab and had a tour of all the lab disciplines. I also had a separate meeting with the laboratory director and the MLTA officers. The lab director was very supportive of the ambitions of the MLTA, but there are

issues to be addressed, such as future roles for MLTs and the use of the title “Biomedical Scientist”, which may conflict with titles used elsewhere in the laboratories.

The MLTA would like to explore the possibility of starting an IBMS branch in Mauritius and they see this as an important route to delivering CPD and exposure to advances in lab medicine.

The MLTs appear to run and manage the laboratory service with little input from other staff groups, but are clear on their escalation routes. The MLTs working in the central lab function as biomedical scientists in the UK but without the senior staff input as the structure is very flat. The equipment appeared pretty up to date and, in most departments, similar to equipment that is found in UK laboratories. Space was a little cramped

but there are plans for a new-build central laboratory that would provide additional space to allow the service to expand.

Health service funding

The health service is publically funded and appears to offer a wide range of services. However, there is a prominent private sector including private hospitals, specialists and laboratories and around 50% of the population have some form of private insurance.

Staffing structure

The staffing structure is very flat. Around five years ago the roles of MLT and senior MLT were merged, leaving only three grades – MLT, discipline-specific principle MLTs, who are appointed based on experience rather than interview, and one overall Chief MLT over all lab disciplines who is mainly, if not entirely, an administrator/manager.

Most staff rotate through the departments and are mainly multidisciplinary.

There are virtually no support staff – MLTs carry out all laboratory tasks. Previous attempts to introduce support staff have failed due to low salary, mobility of staff and no route to MLT.

Laboratory structure

The lab I visited is the central lab, which houses national centralised services including histopathology/cytopathology, molecular testing, most microbiology, specialist testing, blood transfusion, malaria screening, virology, forensic/police lab and food and water testing. There are another four smaller

laboratories in the island that provide blood transfusion, biochemistry and haematology to the local hospitals.

LIMS

Each discipline has their own fairly basic but functional IT system although plans to link them all together to provide a lab-wide LIMS are well advanced.

Plans for a new lab

Plans to build a new lab for centralised services including histopathology/cytopathology, most microbiology and molecular testing are well advanced.



This will replace the central lab that I visited. The new lab will be sited about 30 minutes' drive from the current lab.

Out-of-hours service

Only MLTs staff the out-of-hours service on a roster basis and this on-call service is delivered in the central lab and in regional labs.

Meeting with Dr Jagutpal, Minister of Health and Wellness, at the Ministry of Health, Port Louis

I was honoured to be invited to meet with the Mauritian Health Minister at the Ministry of Health in Port Louis, the capital city of Mauritius. I was ushered into a large boardroom-like room where the officers of the MLTA and the Chief MLT from the central lab were present. Also present was the Permanent Secretary to the Minister and a range of other officials including Human Resources and representatives from the registration body (the equivalent to the HCPC).

I outlined what the IBMS does in the UK and what we can offer the MLTA. I commented on the lab visit and compared the lab services and staffing arrangements with the service in the UK. I focused on the UK situation and the benefits that degree entry has delivered. I also highlighted the advantages of IBMS membership for the Mauritian MLTs. We then moved to the three issues that the MLTA had included in their brief agenda:

(a) The importance of the Medical Laboratory Technologist cadre in the local health sector





“The Minister was well aware of the issues facing the laboratory service and supportive of efforts to improve the service”

We discussed in general terms the vital role of laboratory medicine in the UK and in Mauritius and how the pandemic had increased public and government awareness of the importance of maintaining a highly skilled and resilient service. The Minister was well aware of the issues facing the laboratory service and supportive of efforts to improve and develop the service.

(b) The upgrade of the entry qualification to a degree

The discussion appeared to indicate that this argument has been won and degree

entry will be approved. There was some discussion around those close to retirement but it was accepted that some form of grandparenting would be agreed. The cost of the top-up required to upgrade the existing diploma, which is held by many MLTs to a degree is relatively inexpensive and is delivered by the local university.

(c) The change in appellation to Biomedical Scientist.

This is more sensitive as the use of the term “Scientist” is used by other staff groups. I outlined the situation in the UK

and highlighted the roles and qualifications of clinical scientists and biomedical scientists in the UK and the equivalence options.

The officers from the MLTA appeared very pleased with the outcome, which seemed to meet their objectives. Further discussions will be needed to address the title issue.

Next steps

- Investigate the possibility of establishing a branch in Mauritius
- Consider how the Institute can support CPD for the MLTs in Mauritius; perhaps some specialist webinars delivered through the panels?
- The Institute may receive an formal invite to participate in a review of staffing structures
- I may be asked to help with the introduction of a national cervical screening programme and the potential move to HPV primary screening.

Mauritius

Mauritius is a fascinating place with a population of only 1.25 million scattered across this beautiful volcanic island. I must thank my generous hosts from the MLTA who welcomed me into their laboratory and provided transport from my hotel to the laboratory and to the meeting with the Health Minister. 

Allan Wilson is the immediate Past President of the IBMS. He is also a Consultant Biomedical Scientist in the Pathology Department at University Hospital Monklands in North Lanarkshire, Scotland.



NEWS

MY IBMS



IBMS STRATEGY

#IBMSCHAT AUDIO DISCUSSION

In January the IBMS hosted the first #IBMSChat of the new year, bringing together IBMS Chief Executive David Wells, *The Biomedical Scientist* Editor Rob Dabrowski, and Biomedical Scientist, Cherie Beckett.

#IBMSChat is an online discussion in which members can join in with regular debates about topics relating to the profession.

The regular debate is now held on Twitter Spaces once a month, which allows live audio conversations on Twitter in which the listeners can also take part.

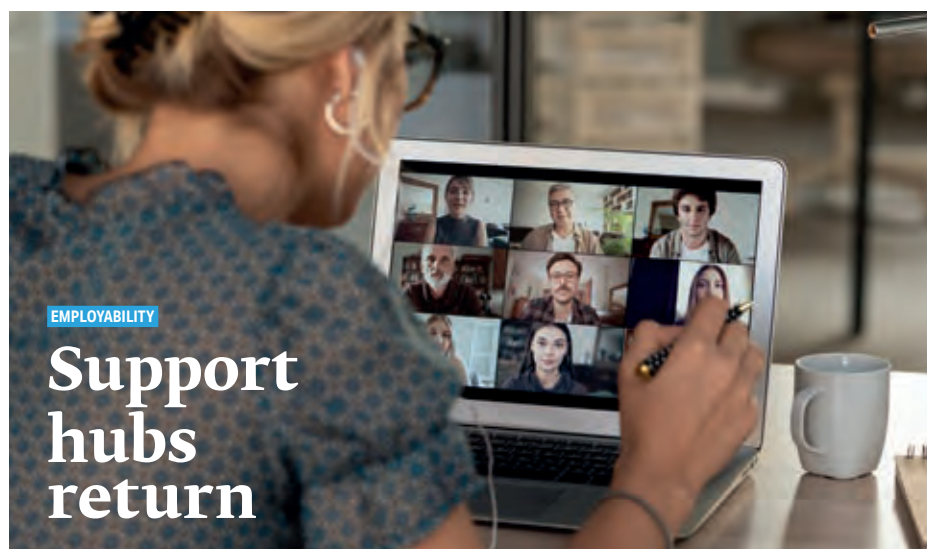
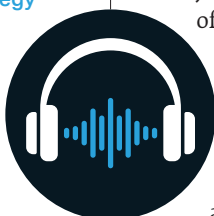
In January, the Twitter Spaces #IBMSChat offered an opportunity for members to directly discuss the plans and objectives of the IBMS with the Chief Executive himself.

David Wells started by discussing the past year and its impact on the profession, with 2022 being the first full year that the world began to emerge from the global COVID-19 pandemic.

David Wells and Cherie Beckett then went on to discuss the IBMS Strategy and the challenges the sector faces in the coming year.

→ To listen to a recording of the discussion, visit bit.ly/IBMSchatSTRAT.

For information about future #IBMSChat events, keep an eye on the IBMS Twitter feed.



EMPLOYABILITY

Support hubs return

The IBMS has announced a new series of Support Hub zoom webinar sessions taking place over the coming months.

Following on from her article in *The Biomedical Scientist* magazine on "Assessing Employability Skills", IBMS Council member Tahmina Hussain, and IBMS Executive Head of Education Sue Jones announced the return.

The Support Hub sessions will take place online via Zoom on Wednesday lunchtimes.

There is a new series of topics selected to cover key skills gaps, as identified in Tahmina's recent employability study.

Set up to investigate employers' expectations of pathology lab work, the study revealed an overlooked area in need of improvement – the skills and knowledge gap of new graduates.

By re-establishing these Support Hub sessions, Tahmina and Sue aim to provide crucial advice to all attendees, with a particular focus

on helping new graduates to better meet employers' requirements.

Tahmina said: "The aim of these sessions is to provide as much support as possible to members, particularly students and graduates, and hopefully bridge some of the gaps that have been highlighted from the employability skills study."

Following sessions will cover other areas such as quality management, UKAS, and the role of pathology in patient care.

Tahmina has also planned for topics including CPD, STP, specialist portfolios and interview preparation tips to be covered in subsequent webinars.

Sue added: "Our IBMS Support Hubs provide a regular opportunity for us to engage with our colleagues, apprentices and students to offer useful and targeted guidance and support. We are focusing on employability and relevant technical and transferable skills for this first event in the series."

→ Further details will be communicated in future IBMS newsletters and social media.



COUNCIL ELECTIONS: YOUR CHANCE TO SHAPE THE FUTURE OF THE IBMS

The IBMS prides itself on being a professional body that is run by its members for its members. It is currently looking for corporate members who will use their professional knowledge, leadership skills and experience to set the strategic direction of the Institute, shaping its future and ensuring it continues to meet its members' needs.

The role of a Council member is hugely rewarding but requires significant personal commitment and skills, strategic thinking, financial understanding, passion for the work of the Institute and the ability to be a role model for the profession. Council members are high caliber leaders of the profession and candidates should be active in the profession at the time of standing for election, have experience of the work that the Institute does in terms of its examinations, and membership and ready to commit time and energy to supporting, progressing and promoting Biomedical Science.

Council members have responsibilities as trustees and company directors of the Institute. A trustee is defined as a person who sits on the governing body and has the right to vote on that body. Council members, as trustees of the Institute, have a duty to have, and must accept, ultimate responsibility for directing the affairs of the Institute and ensuring that it is solvent, well-run, and delivering the charitable outcomes for the benefit of the public for which it has been set up.

Nominations for corporate members to participate in the 2023 elections to Council are now invited, as there are vacancies for two National and three Regional members as follows:

NATIONAL MEMBERS

Two vacancies - three-year term

REGIONAL MEMBERS

Three vacancies

- South East three-year term
- Wales three-year term
- Yorkshire two-year term

Find out more about becoming a Council member of the Institute by visiting the IBMS Council elections page where full details on this important role and eligibility criteria can be found as well as a link to the online application form. www.ibms.org/councilelections/

Deadline for return of nomination forms: 5.00 pm on Thursday 9th March 2023.



CPD

NEW IBMS PODCAST OUT NOW



A new IBMSpod episode is out now, which focuses on practical advice around Continuing Professional Development (CPD).

In Episode 20, Senior Lecturer in Biomedical Science at Nottingham Trent University, Mark Cioni, winner of the CPD Awards 2021, talks about outstanding CPD and the benefits of Science Council Professional Registration.

CPD champion Mark explains how to create a "stand-out CPD profile", revealing how your everyday activities could count towards your work-based learning. He also shares his top tips for those struggling with CPD.

Mark goes on to talk about his registration with the Science Council, explaining how registration benefits his professional standing.

→ To listen, visit bit.ly/IBMSpod20

OBITUARY

IAN HENDRY

We are sad to report the death of an Honorary Fellow of the IBMS.

Mr Ian Hendry was employed at the IBMS in a variety of roles from the late 1960s up until his retirement in 2000, co-ordinating and managing the Fellowship examinations prior to developments such as the Higher Specialist Diploma. Ian was also a key member of staff when the IBMS brought our IT and examination systems into the modern age.

For his long service to the IBMS, Ian was awarded Honorary Fellowship in 2000. The certificate was proudly displayed in his home post-retirement.

As a keen gardener, Ian was a member of Kew Gardens and remained an avid reader of the monthly Gazette. He will be greatly missed by current and former colleagues.

MEMBERSHIP

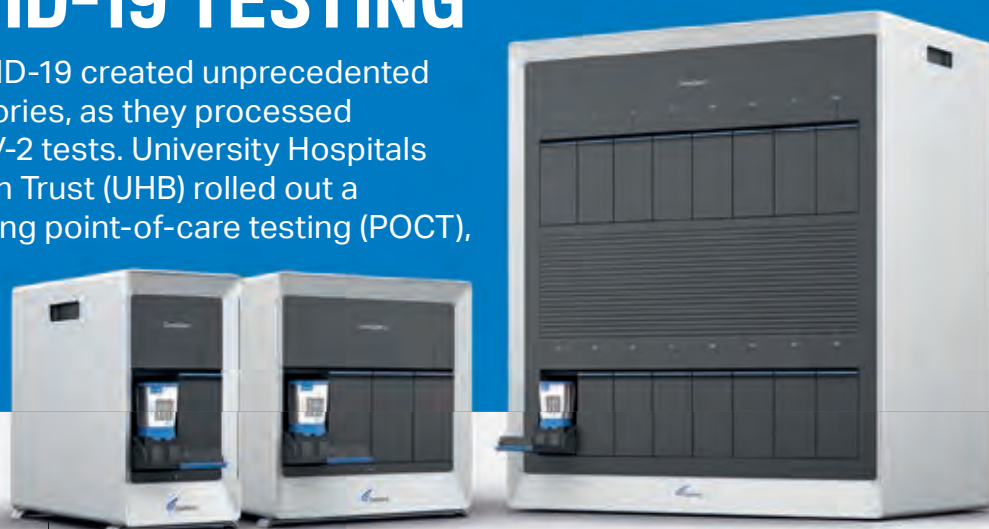
OBITUARY NOTICES



The IBMS is sad to report it was informed of the deaths of the following members and retired members from December to January: Kaye Russell, Sarah Louise Meredith and Holly Rosanna Miller.

POINT-OF-CARE PLATFORMS STREAMLINE URGENT COVID-19 TESTING

The global outbreak of COVID-19 created unprecedented demand on hospital laboratories, as they processed huge numbers of SARS-CoV-2 tests. University Hospitals Birmingham NHS Foundation Trust (UHB) rolled out a number of initiatives, including point-of-care testing (POCT), in an effort to alleviate strain on the service and improve testing capacity.



The UK's pandemic response required patients to be rapidly screened on arrival at hospital, not only for SARS-CoV-2, but also to accurately discriminate between COVID-19 and other symptomatically similar infections. UHB needed to update its existing respiratory infectious disease testing pathway, as its 24-hour turnaround time was too long for emergency admissions. It was also reliant upon three separate tests that had to be run twice to screen for all four viruses – SARS-CoV-2, influenza A/B, and RSV. A shift to POCT was essential to reduce waiting times and improve patient flow. UHB identified the Cepheid GeneXpert® systems as an attractive replacement system, and the trust agreed to purchase several instruments at the same time as it was allocated three GeneXpert systems through a national government contract.

By December 2021, less than two months from the initial discussions, GeneXpert systems were successfully running across three UHB sites, with initial training support provided by Cepheid. Helen Peat, Head of BMS Biochemistry,

Immunology, Toxicology and POCT for the UHB Trust, explained: "The GeneXperts came at a crucial time. They gave reliable results in just 45 minutes and our capacity was increased – peaking at over 600 COVID-19 tests per day – meaning we were able to maintain flow through the hospital and deliver a better service to patients and clinicians alike."

All sites benefitted from the four-in-one testing capability of the Xpert® Xpress SARS-CoV-2/Flu/RSV test, making it possible to screen for the complete suite of viruses in one test. Helen continued: "The advantages of the four-in-one testing ability were clear for patients and for clinicians; patients just had to have one swab taken and clinicians simply needed to request

one test. This allowed for the detection and early diagnosis of viral infections, ensuring that each patient received the proper treatment on time."

The new approach also improved inter-departmental collaboration. Helen remarked: "We get a lot of positive feedback from the trust about how POCT has

allowed efficient and coordinated gathering of data for reporting any cases and outbreaks in infection control meetings." Even following successful vaccination rollouts, and the end of government-imposed restrictions, hospitals have to remain vigilant, identifying and isolating SARS-CoV-2 infected patients to prevent ward outbreaks.

Signs of an increase in influenza cases – which may have been caused by an absence of exposure to flu during lockdowns – means successfully distinguishing between these viruses is still crucial, and the implementation of GeneXpert systems at UHB has improved both the speed and capacity for testing. Helen concluded: "POCT is the answer to our backlogs and is how we are going to keep improving patient flows going forwards."



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QUALIFICATIONS

CELEBRATING EXAM SUCCESS IN 2022

It is time once again to celebrate the success of IBMS members in exams they sat last year. In addition to the names stated below, 199 individuals were successful in achieving the Certificate of Expert Practice (CEP) in Leadership and Management, Molecular Pathology, Quality Management, Point of Care Testing or Training during 2022.



Higher Specialist Diploma (HSD)

The September 2022 HSD exam series saw the highest number of candidates ever sit the exam. The following individuals passed and agreed to have their details published:

Cellular Pathology

Sara Coates – Queen Elizabeth Hospital, Gateshead
Christopher Harreld – Wythenshawe Hospital, Manchester University NHS FT
Richard Hull – Royal Oldham Hospital
Anthanasios Pilatis – Manchester Royal Infirmary, Manchester University NHS FT
Michaela Ridley – Queen Elizabeth Hospital, Gateshead
Ana Santos Martins – Unilabs Limited

Clinical Chemistry

Jessica Hayes – Nottingham City Hospital
Jonathan Holmes – Peterborough City Hospital
Rebecca McAvoey – Ulster Hospital

Cytopathology

Rupinder Cunningham – St Peter's Hospital, Chertsey

Haematology

Emma Connor – Diana Princess of Wales Hospital, Grimsby
Lee Cotterill – Royal Stoke University Hospital
Emma Farnham – Ulster Hospital
Rachael McGuirk – Harrogate District FT
Rebecca North – Queen's Medical Centre, Nottingham

Daniel Pennick – Addenbrooke's Hospital, Cambridge
Rachel Webb – James Cook University Hospital, Middlesbrough

Immunology

Sam Blacknell – Queen's Medical Centre, Nottingham
Emily Gallimore – Manchester Royal Infirmary, Manchester University NHS FT

Leadership and Management

Louise Asser – Luton and Dunstable Hospital
Parminder Bansal – University Hospital of Coventry and Warwickshire
Ranveer Chaven – University Hospital of Coventry and Warwickshire
Katie Forrest – Warwick Hospital
Joanne Lyon – Forth Valley Royal Hospital
Shona Traynor – Forth Valley Royal Hospital

Medical Microbiology

Laura Brammer – Queen's Medical Centre, Nottingham
Timothy Lowry – Craigavon Area Hospital
Julie Murray – Royal Victoria Hospital, Belfast
Lucy Williams – Singleton Hospital, Swansea

Transfusion Science

Lucy Bevan – Freeman Hospital, Newcastle upon Tyne
Amy Braniff – Ulster Hospital
Joanne Campbell – Causeway Hospital, Coleraine
Nicola Chadburn – Queen's Medical Centre, Nottingham

Victoria Chong-Cave – Darlington Memorial Hospital
Philip Cummings – Leeds Teaching Hospitals Trust
Jason Frankcam – Kettering General Hospital
Nicola Kelly – NHS Blood and Transplant, Reagents
Thomas Lynes – NHS Blood and Transplant, Bristol
Nuno Marujo – North West Anglia NHS FT
Lynne Morgan – Inverclyde Royal Hospital
Rachel Naylor – James Cook University Hospital, Middlesbrough
Geneen Powell – Royal Hallamshire Hospital, Sheffield
Helen Slade – Hereford County Hospital

Virology

Samantha Kitchener – Freeman Hospital, Newcastle upon Tyne

Cytology

The following individuals were successful in passing the written and microscopy exams held in 2022:

Diploma of Expert Practice (DEP) in Non-Gynaecological Cytology

Gabriele Clarke – Royal Derby Hospital
Abosede Shobo – Queen's Hospital, Romford

Advanced Specialist Diploma (ASD) in Non-Gynaecological Cytology

Sue Saiger – James Cook University Hospital, Middlesbrough

Histopathology Reporting

To achieve this qualification candidates have passed the Stage A, B and C portfolios and exams at the Stage A and C.

ASD in Histopathology Reporting – Dermatopathology

Liya Bibby – Arrowe Park Hospital, Wirral
Suzanne Hatter – Queen Victoria Hospital, East Grinstead
Claire Russell – Royal Stoke University Hospital

ASD in Histopathology Reporting – Gastrointestinal Pathology

Claire Andrews – Wythenshawe Hospital, Manchester University NHS FT
Sarah Flitcroft – Airedale NHS Foundation Trust
Emma Jordan – University Hospitals Birmingham NHS FT

ASD in Histopathology Reporting – Gynaecological Pathology

Joanne Hallchurch – Royal Stoke University Hospital
Peter Smith – Liverpool University Hospitals NHS FT

JOURNAL-BASED LEARNING EXERCISES



Please select your choice of correct answers and complete the exercises online at: www.ibms.org/cpd/jbl

DEADLINE WEDNESDAY 3 MAY 2023

Changes in the incidence of transfusion reactions in hematological patients over the past 30 years. Bojanić I, Lukić M, Plenković F, Raos M, Medenjak M, Čepulić BG. *Transfusion* 2022 Mar; **62** (3): 600–11. doi: 10.1111/trf.16816. Assessment No 020223

01	The study was a retrospective observational lookback of reported transfusion reactions (TRs) from 1993 to 2019 in adult haematological patients.	11	Six incorrect component blood transfusions (ICBT) were reported to cause acute haemolytic transfusion reactions (AHTR).
02	The reported transfusion reactions were discussed and classified according to the guidelines provided by the International Society of Blood Transfusion (ISBT) working party on haemovigilance.	12	Two patients with acute myeloid leukaemia received incorrect blood components due to their A and B antigens reappearing following remission.
03	Until 2004, red blood cells (RBCs) were stored in saline, adenine, glucose and mannitol (SAGM) additive solution.	13	Advancements in the collection, processing and testing of components has improved the overall quality of blood products and transfusion safety, therefore lowering the occurrence of TRs.
04	In 2000, manually performed column agglutination technology (CAT) was introduced for antibody screening in blood typing.	14	The incidence of TRs reported annually during the 1990s was high and the IBCTs were the most frequently reported.
05	RBCs can be matched with the patient's partial phenotype (C, c, E, e and K antigens) and, in complex cases with an extended phenotype including other clinically significant antigens (Jka, Jkb, Fya, Fyb, S, s).	15	In 2000, hospital policy regarding the use of leukoreduced blood components was changed from selective use according to national recommendations to universal use for all patients.
06	2006 was considered a transitional year where universal leukoreduction was introduced, and reported TRs were excluded from the analysis.	16	The overall risk of TRs to FFP was not reduced during the study period as there has been no change in FFP production.
07	During the study period, 1096 TRs were reported in 827 haematological patients. The median age of patients was 45 years (range 18–93), and over half of them were men (54.4%).	17	The low incidence of TRALI associated with FFP transfusion in this study was most probably related to the use of plasma collected from only female donors since 2004.
08	93.2% of patients in the study had a history of prior transfusions.	18	It was proposed that although TRALI could develop through direct activation of the pulmonary endothelium, there was a lower incidence of TRALI in leukaemia and lymphoma patients due to their existing neutropenia.
09	Since PAS has been introduced into platelet concentrates, a decrease in TR incidence has been observed. Between 2016 and 2019 the overall incidence was reduced to 0.79/1000 units compared to 3.74/1000 units between 2006 and 2015.	19	Over the last 10 years the incidence of DHTR/DSTRs has increased as a result of prophylactic antigen matching (PAM).
10	During the study period 35 DHTR and six DSTR were reported.	20	Improvements in donor selection, enhanced skin disinfection, phlebotomy technique, and use of diversion pouches has lowered the incidence of TTBLs.

REFLECTIVE LEARNING

01	The study describes the difficulties of managing various special transfusion requirements and the subsequent introduction of universal irradiation in all haematological patients in certain institutions. Discuss the advantages and disadvantages of this approach.	02	Can you list the safety measures you have within your laboratory to ensure that the right component goes to the right patient? Your answer should include serological techniques as well as any electronic support available for data integrity, component selection and retrieval.
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DEADLINE WEDNESDAY 3 MAY 2023

Splicing factor 3B subunit 1 (SF3B1) mutation in the context of therapy-related myelodysplastic syndromes

Volpe VO, Al Ali N, Chan O *et al. Br J Haematol* 2022; **198** (4): 713–20. doi: 10.1111/bjh.18319.

Assessment No: 020423

01	Some 80-90% of myelodysplastic syndrome (MDS) diagnoses are not therapy related.	11	Despite the apparent differences in proportions, when comparing complex karyotypes in patients with t-MDS <i>SF3B1</i> ^{mut} and those with <i>de novo</i> disease, there is no statistically significant difference.
02	Following exposure to topoisomerase II inhibitors, the time taken to develop therapy-related myeloid neoplasms is 4–10 years.	12	Within approximately 25 months, the cumulative survival of patients with <i>SF3B1</i> ^{mut} t-MDS drops by 40% whereas cumulative survival for <i>de novo</i> MDS with <i>SF3B1</i> ^{mut} drops by approximately 10%.
03	The molecular phenotype and aggressiveness of t-MDS is variable.	13	Cytogenetic and molecular mutations are an essential consideration when classifying therapy-related myeloid neoplasms.
04	95-97% of patients with <i>de novo</i> MDS have <i>SF3B1</i> mutations.	14	Once a clonal population of cells has developed in response to therapy, there is currently no way to prevent the development of a therapy-related myeloid neoplasm.
05	Study inclusion criteria required patients to be 18 years of age or older with prior mandatory assessment of SF3B1.	15	When considering t-MDS, 60% of patients in the <i>SF3B1</i> mutant group will be alive approximately 12 months after diagnosis compared to 25 months in the <i>SF3B1</i> wild-type group.
06	The χ^2 test was used to assess continuous variables while the <i>t</i> -test was used for categorical variables.	16	Approximately 20% of patients with <i>de novo</i> MDS will be alive at 160 months following diagnosis.
07	In this study of 320 patients, 10.7% had been treated with either topoisomerase II inhibitors or alkylating agents.	17	According to Zeidan <i>et al.</i> , some cases of low-risk MDS behave more like <i>de novo</i> MDS than t-MDS.
08	From the participants diagnosed with t-MDS, prior malignancies involving solid tumours exceeded haematological malignancies by 23.4%.	18	Patients with t-MDS and mutated <i>SF3B1</i> were more likely to progress to AML and harbour <i>p53</i> mutation.
09	When comparing the overall survival between t-MDS <i>SF3B1</i> ^{mut} with <i>de novo</i> MDS <i>SF3B1</i> ^{mut} , those with <i>de novo</i> disease have a significant survival advantage (<i>P</i> <0.05).	19	According to the diagnostic criteria by the IWG-PM, <i>RUNX1</i> mutation must be present to diagnose the disease entity MDS with <i>SF3B1</i> .
10	Of the 320 study participants, the greatest proportion of patients with <i>de novo</i> MDS <i>SF3B1</i> ^{mut} had single lineage dysplasia with ring sideroblasts.	20	The study by Volpe <i>et al.</i> supports the assertion that <i>SF3B1</i> ^{mut} is a distinct disease entity.

REFLECTIVE LEARNING

01	Myelodysplastic neoplasm is a term introduced in the 5th edition of the World Health Organization Classification of Haematolymphoid Tumours. Evaluate the differences in MDS classification between the 4th and 5th editions and the impact of these changes on laboratory medicine.	02	Critically discuss the involvement of <i>SF3B1</i> mutation in haematological neoplasms.
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IBMS RESOURCES

CONTINUING PROFESSIONAL DEVELOPMENT

My CPD

Members can enhance their professional practice and development with the IBMS CPD scheme. The scheme offers members a flexible system of recording CPD that

is easy to use and meets the requirements for achieving and maintaining professional registration. The scheme is now electronic, so recording, amending and validating are all carried out online.

Journal-Based Learning (JBL)

IBMS JBL involves reading and answering questions based on articles in scientific journals. It is an excellent way to learn about scientific

advances and techniques as part of CPD.

Reading resources

IBMS reading lists, textbooks and journals support learning and development.

Biomedical Scientist
Elizabeth Holyoak
looks at how to get the
most out of an appraisal
– with a particular
focus on those who may
face discrimination.

“My Contributions”,
“Values-Based
Appraisals”,
“Times to Talk”,
“Annual
Reviews”...
whatever your
organisation

calls them, annual appraisals are a fact of life for most IBMS members. However, when it comes to sitting in a room with a senior or line manager (or in some trusts a Band 6), how do you make the most of that experience?

It can be easy to think it's just a box-ticking exercise your organisation demands each year, but appraisals have a purpose and they can be leveraged to your advantage, particularly if you are from an ethnic minority, disabled, LGBTQ+, or other minority background. That includes women (who are 77% of the NHS workforce but only 47% of very senior managers).

Most NHS appraisals follow a similar structure, with the occasional tweak from the human resources department.

● **A section on your job role and what went well:** what have you achieved this year, any new skills/learning?

● **A section on what has not gone well:** this could be personal issues you have faced, or workplace issues such as new rotas, laboratory mergers or slow portfolio work marking.

● **Values-based behaviour:** almost all NHS employers have 3–5 words or phrases that are set by the Board to guide staff behaviour and ethos. They are usually



APPRAISALS FOR EQUALITY

fairly meaningless to your job but attempt to “set the culture”. You may have words like “kind”, “honest”, “collaborative”, “thriving”, “respectful”... in this section attempt to demonstrate those values with an example.

● **Career aspirations:** what is your next role, how has your portfolio progressed, would you like to do a Masters?

● **Objectives section:** you are normally asked to fill out 4–6 objectives and any manager worth their salt will ask you to pick some very easy things (such as finishing a single competency) along with more challenging objectives such as 6 modules of the Specialist Portfolio

● **Development section:** this is one of the most valuable parts of the appraisal – always ask for something, whether it's funding for a short course, time to attend online seminars related to your specialty or permission to attend a NEQAS event.

● **Health and wellbeing:** this is a valuable section where you can discuss your health (physical and mental). Have you noticed that using a pipette is hurting your hands, does wintertime make you depressed, is there a bench that causes you to stress too much?

● **Statutory and mandatory training check:** you are expected to be up to date, however, if you aren't then you will need

to justify why (are you too busy on a bench?). This section is now vital because NHS pay progression requires you to be up to date.

A golden opportunity

The forms are often long and quite arduous but appraisals are a golden opportunity to get one-to-one time with your line manager or senior and set out goals. What gets written on the form is an agreement between you and the department to try and obtain those goals, and a good appraisal can help hold you and your employer to account. If you come back a year later and still haven't been on a NEQAS course then you can point to your agreement and push back. If you feel that the department is not progressing with the goals agreed in your appraisal then you can contact your trade union (if you are a member), or human resources department for help.

There are equality, diversity and



inclusion (EDI) benefits to taking appraisals seriously too.

For ethnic minorities

We know from numerous reports that people from ethnic minorities are less likely to be promoted than white staff, more likely to face disciplinary action and more likely to be bullied in the NHS. The most striking figure from the 2021 Workforce Race Equality Standard (WRES) report is that 21% of NHS staff in England are Black and Minority Ethnic,

“This is one of the most valuable parts of the appraisal – always ask for something”

but only 9.2% of staff in pay bands 8C and above are Black and Minority Ethnic. In total, 29.7% of Band 5s are Black and Minority Ethnic but only 19.0% of Band 6. These figures demonstrate that Black and Minority Ethnic staff are not progressing at the same rate as their white colleagues.

One potentially contributing factor is that Black and Minority Ethnic staff in England are less likely to be able to access non-mandatory training and continuing professional development than white staff, so, leveraging your appraisal could be very useful.

For LGBTQ+

LGBTQ+ people may find appraisals a good opportunity to raise issues if there has been discrimination from other staff. If there is an undercurrent of homophobia or transphobia in your laboratory then discussing this at appraisal can help get it onto the radar of management without you having to take out a formal grievance. Transgender staff might want to “come out” in an appraisal and start transitioning at work (many NHS organisations now have a Transitioning at Work policy, which you could bring to the appraisal to help guide the conversation).

For women

In NHS England the gender pay gap is 16.20% (mean), in Public Health Wales the gap is 16.05% (mean). NHS Scotland has a gender pay gap for healthcare science of 2.2% (mean) and an overall pay gap of 18.2% for all staff groups. Only NHS Scotland breaks down gender pay gaps per sector. Unfortunately, the gender pay gap has been around for a long time and is often attributed to the childbearing “costs” to women. In private companies and labs you may need to look at negotiating for higher wages, talk to your friends and colleagues about what they are paid, and if it's higher than your pay, raise it at appraisal (look for articles on the internet for more detail).

In the NHS, scientists of all genders are

on Agenda for Change wages, which are the same for everyone. However, childcare costs are very high and many women choose to work part-time after having a baby. In labs, our general experience is that management are not keen to grant reduced hours or “unusual” shift patterns. Flexible-variable hours are even less likely to be approved and home-working is usually impossible. It is important not to be put off by this though – everyone has a legal right to request flexible working and management can only deny it for one of eight specific business reasons. If you enter an appraisal with a specific proposal for flexible work then you can start a conversation. The appraisal can be your first step and a sounding board, then there will be a flexible working application form and a policy to follow.

For parents

Parents of all genders face challenges at work, particularly if you are a parent who has chosen to take on the majority of the caring responsibilities, or you are a single parent. You might like to investigate a flexible working request during your appraisal. Or you might need to raise that you still want to continue to study and learn after your kids have grown up a little. Your management team cannot make that decision for you, ultimately you should be able to set your priorities together.

For disabled people

Disabled people can be subject to terrible discrimination and your appraisal may be a chance to raise discrimination at work,



a proposal for flexible working, examination of your trust's special leave policy (some allow a set number of days of paid leave for medical appointments for people with disabilities), or for you to push for more training.

Disabled people are entitled to reasonable adjustments. These are changes to your workload, workplace, work type or working times, which aim to reduce or remove a disadvantage related to their disability. For example, someone who suffers from depression may have a reasonable adjustment to start work late, someone with repetitive strain injury may have a vertical mouse and someone with ADHD may be able to go for walks whenever they need to “reset”. If you are disabled then it is worth considering what reasonable adjustments can be made to help you at work and raising them in your appraisal.

For managers

Appraisals are an opportunity to get to know your staff more, to show them how valued they are and to ensure that they are bringing their whole selves to work. Don't take them for granted and don't enter an appraisal with preconceptions. Providing a good service relies on your workers being content, safe and secure in work. Thorough collaborative appraisals have been shown to benefit both the staff and the organisation.

Conclusion

All staff can benefit from a good appraisal so please make the most of them and make sure that everything you discuss is written down. Use your trade union, human resources department and everything at your disposal to make work work for you. [IBMS](#)

Elizabeth Holyoak is a Biomedical Scientist at Public Health Wales, an IBMS EDI Working Group member and an Equality Officer at Unite, Public Health Wales Branch.

IN NUMBERS: IMPROVING RACE EQUALITY IN THE NHS



41.7%

Black and Minority Ethnic staff at very senior manager level increased by 41.7% since 2017.

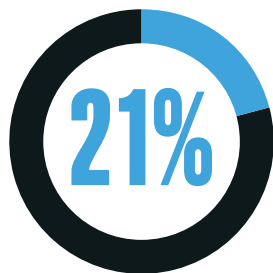
1.16 TIMES

Black and Minority Ethnic staff are 1.16 times more likely to enter a formal disciplinary process than white staff.



9.2%

9.2% of staff in pay bands 8C and above are Black and Minority Ethnic. This is far lower than the percentage working in the NHS.

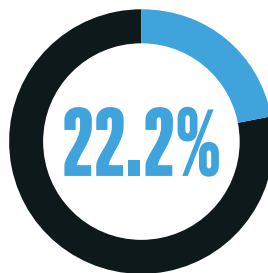


21% of NHS staff are Black and Minority Ethnic (273,359).



10%

10% of trust board members are Black and Minority Ethnic (7% in 2019).



Increase in Black and Minority Ethnic board members since 2019.

EMOTIONAL INTELLIGENCE



Emotional intelligence (EI) is described as an individual's ability to read and understand others in social context, to detect the nuances of emotional reactions, and to utilise such knowledge to influence others through emotional regulation and control. EI is also described as an individual being able to manage their own emotions and empathise with those around them, allowing them to strengthen relationships and grow as an individual. EI has also been described as the ability to communicate and be able to relate with others effectively and constructively. It is having the ability to perceive, interpret, demonstrate, and control.

Why is it important for leaders in healthcare science to have EI?

EI is an important tool for leaders within healthcare science today, particularly with constant change and challenges within the NHS and healthcare. Personal life outside of the laboratory can affect different members at different levels within a team. EI is key for representing what is a critically important competency for effective leadership and team performance in organisations today. Leaders with EI are also able to empower their teams, which can lead to improvements within the workplace. It is all too common that a leader or manager doesn't know what is

Leaders need to have emotional intelligence to recognise equality, diversity and inclusion within the workforce, writes Laboratory Manager Francis Yongblah, member of the IBMS Equality, Diversity and Inclusion Working Group.



happening on the shop floor. Therefore, it really is key for there to be engagement between leadership/managers and their team in order for there to be a voice for the team.

EI for recognising and supporting equality, diversity and inclusion (EDI)

Today there is a vast workforce of people from diverse backgrounds. With diversity comes perspectives and experience. It is essential that all groups can be fairly represented and supported by their managers and leaders. This includes representation for sex, age, race, sexuality, disability etc. Having EI as a leadership tool will allow senior scientists and team leaders to be able to support their team members and get the best out of them.

There are a few ways that leaders can embed EI within their everyday management and leadership to ensure that all team members are represented:

1. Listen to your colleagues and put yourself in their shoes
2. Spend time reflecting on yourself and your motivations
3. Don't shy away from social engagements inside and outside of work
4. Be supportive, even if it's not in your job description
5. Treat your emotional health like your physical health.

Within the healthcare science professional, it is key that there are more emotionally intelligent leaders. These are leaders who are not afraid to be honest about themselves and show empathy to others. This is particularly important with EDI within the workforce to be able to recognise and support EDI ensuring all members of staff within a team have equal and fair opportunities as well as getting the necessary support and representation needed. EI will have a positive impact on team outcomes and in turn will allow for better outcome for patients. **IBMS**



RECRUITING NOW

Closing Date: 26th February 2023

Sonic Healthcare UK continue to be leaders in consultant-led diagnostics and continue to invest in both people and technology to offer the best service possible. With over 30 years' experience in the UK pathology market, 22 of which have been alongside NHS partners, the organisation supports pathology services in both private and NHS hospital sites across the UK. The nationwide network covers 19 laboratory sites, providing acute and routine testing across all pathology disciplines, and includes specialist referral services.

We recognise the challenges the profession has regarding the recruitment and development of experienced scientific staff. Over the years, we have built up our expertise in a 'grow your own' workforce strategy, developing scientists through recognised training programmes for both HCPC registration and post registration training pathways.

We have a dedicated learning and development team who support our laboratory trainers. Our state-of-the-art online training platform 'Sonic Learn' allows us to facilitate innovative approaches to training, including our recent prize-winning project on the use of instructional videos as part of laboratory training.

Building on our pedigree of high quality training, we are launching a new initiative, Sonic Training Academy, that will be responsible for creating proficient Biomedical Scientists through a degree apprenticeship programme. We are proud to be investing in a dedicated training laboratory and through annual recruitment of student cohorts, Sonic Training Academy will ramp up to over 40 ambitious trainees in different disciplines at our numerous laboratory sites at various stages of their training.

A team of training officers within the academy will be available to offer hands-on support. The academy will also assist with other exciting training initiatives across the organisation, including development of eLearning modules, CPD activities, lab skill workshops, and interactive tutorials.

We are looking to recruit to two brand new positions - Training Manager and Deputy Manager, and are looking for passionate individuals to provide leadership and operational management of Sonic Training Academy. Each post is a full-time, permanent role with a competitive salary and benefits such as subsidised gym membership, generous annual leave allowance, enhanced maternity & paternity pay, and a cash healthcare plan.

If you are passionate about pathology training, this is a fantastic opportunity to be part of an exciting ground breaking project. Further information is available via the QR codes below, by visiting: www.sonicukjobs.com or by contacting our Head of Learning and Development, Wendy Leversuch: wendy.leversuch@hslpathology.com

Training Academy
Manager Role



Training Academy
Deputy Role



HERE TO HELP

DEGREE ASSESSMENTS

Sue Jones, IBMS Executive Head of Education, outlines a new change for non-accredited degree assessments.

To support a diverse range of colleagues joining the profession, the IBMS supports several routes to registration as a biomedical scientist. Those who have graduated from both IBMS-accredited biomedical science

programmes and graduates from non-accredited biomedical sciences, or single-discipline degree programmes such as microbiology or biochemistry, can be employed to trainee positions in pathology laboratories.

By offering degree assessments, the Institute supports the progression of graduates who have completed a non-IBMS-accredited degree programme. Degree assessments identify the areas of the HCPC Standards of Education and Training (SETs) that have not yet been met by the non-accredited degree course. They identify any subject knowledge that has not been previously covered and is required to meet the HCPC SETs for biomedical scientists. These subjects must then be completed as supplementary education via top-up modules at a university that runs an IBMS-accredited biomedical science degree (www.ibms.org/accredited-degrees).

Following a review of the process of non-accredited degree assessments, the IBMS Education and Professional Standards Committee has decided to decrease the maximum length of time after graduation that degrees can be assessed. Previously, application for non-accredited degree assessments were

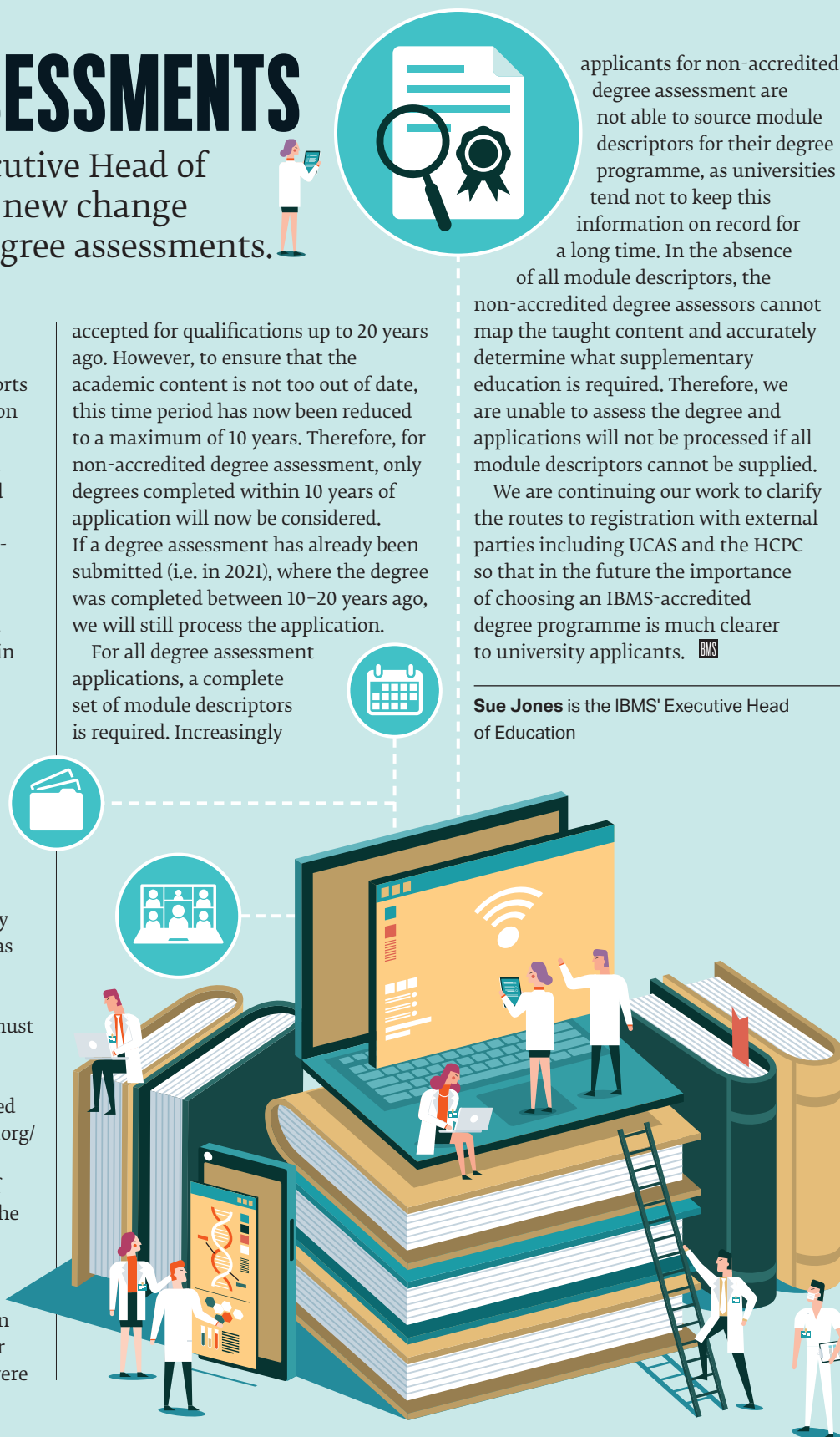
accepted for qualifications up to 20 years ago. However, to ensure that the academic content is not too out of date, this time period has now been reduced to a maximum of 10 years. Therefore, for non-accredited degree assessment, only degrees completed within 10 years of application will now be considered. If a degree assessment has already been submitted (i.e. in 2021), where the degree was completed between 10–20 years ago, we will still process the application.

For all degree assessment applications, a complete set of module descriptors is required. Increasingly

applicants for non-accredited degree assessment are not able to source module descriptors for their degree programme, as universities tend not to keep this information on record for a long time. In the absence of all module descriptors, the non-accredited degree assessors cannot map the taught content and accurately determine what supplementary education is required. Therefore, we are unable to assess the degree and applications will not be processed if all module descriptors cannot be supplied.

We are continuing our work to clarify the routes to registration with external parties including UCAS and the HCPC so that in the future the importance of choosing an IBMS-accredited degree programme is much clearer to university applicants. **IBMS**

Sue Jones is the IBMS' Executive Head of Education



MY LAB

DELIVERING POINT-OF-CARE TESTING

Rakhee Surti gives a guided tour of the point-of-care testing facilities in Milton Keynes and looks at the importance of collaborative working.

I am a Specialist Biomedical Scientist working in a collaborative Project Manager role for Milton Keynes University Hospital (MKUH) and Bedford, Luton, and Milton Keynes Integrated Care Board (BLMK ICB), to discover point-of-care testing (POCT) services in primary care (Milton Keynes).

MKUH provides an accredited multidisciplinary pathology diagnostic service to a growing population of around 270,000 people in Milton Keynes (MK). This service includes the provision of POCT in clinics, wards, and acute settings within the trust. It is a robust and quality-led service that is delivered by fully trained and competent staff, ensuring it meets the clinical requirements as well as patient's needs.

Having an established POCT service within the trust, a number of questions were raised as to whether this service also existed in primary care, and if so, how was it managed? Was it also comparable to the trust POCT service and would it meet governance and national standards, and adhere to the clinical needs of the patient?

The project was therefore initiated to reach out to local GP practices in MK with a clear vision:

- Identify and discover POCT devices and services in use across MK GP practices.
- Document key strategic recommendations – compliance vs.



non-compliance, demonstrate good practice and highlight where improvements can be made.

- Deliver benefits in patient care in line with national strategies and Get It Right First Time (GIRFT) standards.
- The project involved me conducting a number of audits at key GP practices, which demonstrated significant findings.
- Support was welcomed by GP practices when findings highlighted gaps in practice, and they agreed that by working collaboratively harmonisation can provide a consistent, aligned POCT service. One local GP said: "Building networks between primary and secondary care can only be a good thing and you supporting this initiative is very much appreciated."
- Working in partnership can reduce inconsistencies, deliver a quality-led service, and streamline diagnostic access for patients with known and unknown diseases.
- GP practices agree that

recommendations demonstrate how they can work towards delivering safer patient care and continuously improve their standards of excellence.

It is clear that working in partnership with your local hospital laboratory healthcare scientists, they are able to provide the expertise, knowledge, and skill-sets to understand what is required of a governance compliant-led POCT service. Working

collaboratively as a multidisciplinary network supporting primary care POCT teams on a range of issues, to include purchase of appropriate devices, staff training, results interpretation, quality assurance, patient diagnostic pathways and much more.

POCT is rapidly growing, an essential service for the immediate and swift management of patient care. The future, governed by a Point-of-Care Community Co-ordinator is to transform the service for a growing population and meet the increasing demand for diagnostics. Collaboratively POCT can utilise people and technology to provide a robust cost-effective service, reduce unnecessary acute hospital admission and triage patients effectively, placing the patient at the heart of the system. Reducing NHS pressures and moving towards compliant diagnostic technological advances, the community POCT service will give the right test, at the right time, for the right patient. 



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A close-up portrait of a woman with long, dark hair and a gentle smile, looking slightly off-camera. She is wearing a light-colored, textured top and small pearl earrings. The background is a blurred cityscape.

The life-changing value of diagnostics

The right diagnostic test, at the right time, can change the course of someone's healthcare experience – and their life.

Diagnostics inform the countless decisions which need to be made along every step of a person's health, wellness and disease journey.

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