

Looking forward: another preview of BSMT's Annual Microbiology Conference

The 37th Annual Microbiology Conference of the British Society for Microbial Technology will be the organisation's first full face-to-face meeting for over two years. *The Genomic & Microbiology Revolution: In Technology We Trust?* represents one of the BSMT's main topics of interest because of its relevance to all clinical microbiology laboratories. Here, BSMT committee member David Westrip previews the conference.

The impact of SARS-CoV-19 and the national response resulted in the 2021 event moving to an online webinar format. The virtual conference is widely thought of as having been a great success in difficult circumstances. The 2021 webinar naturally focused on the ongoing pandemic, and this remains an important component of the microbiology services across the country. The recordings of these presentations remain available through links on the BSMT website and its YouTube channel. Earlier this year the committee took the difficult decision to delay this year's meeting from the traditional May slot to later in the year to reduce the potential risk and impact of circulating the COVID virus. The BSMT conference is now scheduled for Tuesday 19 July at the RAF Museum in Hendon, and an interesting and stimulating scientific programme has been arranged covering a range of topical issues.

Antimicrobial resistance

As the COVID-19 response is gradually de-escalated in line with government and UKHSA advice, other issues are again beginning to demand attention. Aside from pandemic viral infections, one other topic notable enough to feature on the UK's national risk register is that of antimicrobial resistance, which has been formally recognised as a national concern since 2015. As a subject of continual

discussion, the BSMT is lucky enough to have two highly regarded speakers presenting at this year's event on different aspects of this important topic.

Testing for antimicrobial resistance (AMR) and the debate around the limitations of current methodologies will be familiar to those who work in diagnostic microbiology laboratories. Keeping up to date with developments in this field is seemingly a never-ending task and not always one that comes easily to everyone. Ever-evolving interpretive

guidelines for phenotypic testing can be challenging and difficult to implement in a timely fashion. Chromogenic media may have their place in screening for resistant organisms but come with limitations, and the impact of molecular technology is perhaps yet to be fully realised. Dr Katie Hopkins currently serves as the head of the UKHSA's Antimicrobial Resistance and Mechanisms Service and thus is well placed to discuss the limitations of current methodologies. With over 15 years' experience working



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within the field, Dr Hopkins will no doubt provide a fascinating perspective and comprehensive insight into a complex and ever-evolving topic.

In global terms, the UK has in place relatively robust surveillance and reporting mechanisms for antimicrobial resistance. Through mechanisms such as antimicrobial stewardship and control of prescribing practice, the availability of antimicrobial drugs is limited. A raft of policies operating under a number of government action plans and strategic initiatives gives the perception of a degree of national control over this evolving problem. COVID-19 has shown that pathogens have no obligation to respect borders; international travel coupled with the propensity for bacteria to acquire and share resistance mechanisms means that unless they are controlled at the international level the UK will remain at an ever-increasing risk. It is becoming clear that this issue is a worldwide problem and as such necessitates global coordination and solutions.

Dr Esmita Charani is uniquely placed to offer a perspective on this issue, having originally trained as a pharmacist, and she is currently the research lead for the National Institute for Health and Research. In addition, she holds a number of visiting positions in a range of international institutions, and recent publications include topics such as the shortage of

antimicrobials and the global health security risk, international perspectives on antimicrobial security as well as the inevitable impact of COVID on research into antimicrobial resistance.

Molecular diagnostics

Perhaps molecular diagnostics does not now elicit the fear it once did among traditional plate and loop bacteriologists; however, COVID forced many out of their comfort zone and exposed a whole new cohort to the polymerase chain reaction (PCR) and similar techniques. As the technology continues to develop, it is perhaps accepted as inevitable that molecular methods will play an increasingly important role across microbiology. In future years this will provide potential opportunities and creating new problems to overcome.

This year's opening speaker Professor Paul Dark, recently appointed as the National Deputy Medical Director for the NIHR Clinical Research Network, will speak about developing molecular technologies in relation to sepsis. This is an area of microbial diagnostics where reducing the time to clinically actionable results would produce significant improvement in patient outcomes, yet many laboratories remain dependent upon culture-based methods with the inherent delays these techniques bring.

Genomic sequencing is a powerful

diagnostic tool that has been adopted within reference facilities for strain characterisation and outbreak investigations but as yet has not widely transferred to the diagnostic setting. Significant costs and the need to develop skills in bioinformatics to aid data manipulation and interpretation have been significant obstacles to its widespread use. However, the potential advantages are significant in the detection of non-culturable pathogens, with high sensitivity and the ability to assess the microbial population within a range of specimen types in close to real time. As the technology develops, it will be fascinating to see what diagnostic opportunities may be realised, and one such system is Nanopore technology, which will be the subject of Adela Medina's presentation. This was originally scheduled for the 2020 BSMT meeting and was previously summarised in the August 2020 issue of *Pathology in Practice*. It will be fascinating to see what further developments there have been in the interim period.

Whole-genome sequencing (WGS) is now the first-line means of strain characterisation for the national TB reference laboratories. It has become well established as a technology over recent years and is relatively well understood as a 'typing' technique. Some antimicrobial data can be determined that now have largely replaced first-line phenotypic testing, resulting in significantly reduced turnaround times for most isolates. Dr Natasha Weston from University Hospital Birmingham will seek to push these established limits and ask the question, what else beyond ID and sensitivity can we learn using WGS?

New technologies and data analysis

New technologies often provide new opportunities and frequently lead to improvements in service and better clinical outcomes. Those involved in implementing these changes know that it is not without significant effort that these techniques are introduced. Incorporating new methods into established quality control and training systems can throw up unexpected hurdles. Dr Elaine McCulloch, Technical Project Manager for QCMD, will address some of these problems and no doubt advocate for a robust approach to quality assurance.

While it is exciting to be able to discuss developments in microbiology beyond the subject of COVID-19, the pandemic remains a source of significant clinical and scientific interest. Perhaps never before have we been in a position to gather as much real-time data in the middle of an

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unfolding global viral pandemic. The COVID-19 Genomics UK Consortium (COG-UK) founded in response to the COVID-19 pandemic continues to play a crucial role in data analysis and research, having established a national public health screening network. Analysis of the data gathered during the pandemic will likely provide a unique opportunity to understand the national and global movements and evolution of the virus retrospectively.

Dr Dinesh Aggarwal is a clinical PhD fellow and microbiology registrar with the University of Cambridge currently working at COG-UK. His work focuses on understanding the transmissibility of the virus and the role genomics can play in understanding viral outbreaks. Hopefully Dr Aggarwal will be able to provide some insight into how this data analysis contributes to understanding and controlling the pandemic going forward.

While a focus of many microbiology events and conversations over the past two years, it is clear that there is much left to be said about COVID-19 and it will likely remain a topic for many years to come. Perhaps it will even give us a better understanding of viral genomics and make us better prepared for future pandemic events.

Join us for discussion and networking

Scientific presentations at BSMT conferences are always thought-provoking and of high quality, and the return of face-to-face meetings brings the opportunity for discussion and networking, which is so much harder in virtual events. Delegates at the conferences are predominantly healthcare professionals working in clinical microbiology laboratories and the topics chosen are aimed to be particularly relevant for bench microbiologists to

provide up-to-date information about organisms and techniques, especially with regard to new molecular technologies.

It is also surely a great relief to delegates and the scientific commercial sector that it will be possible this year to re-engage directly with our commercial colleagues. The BSMT is fortunate in having a loyal following of commercial companies who return year on year to attend our conferences; trade presence at our meetings is always heavily over-subscribed. This year's BSMT conference will have a full trade show comprising 20 of the most innovative companies attending to present the latest developments and newest equipment to talk to delegates about what their company can offer your laboratory. There is generally an excess of free pens to pick up and sometimes even the odd notebook if you are in the right place at the right time. Why not come and join us?



Find out more about the conference and how to register at www.bsmt.org.uk or on the *Pathology in Practice* website (www.pathologyinpractice.com).

Read more about the BSMT and the upcoming conference on 19 July in the April issue (page 28).

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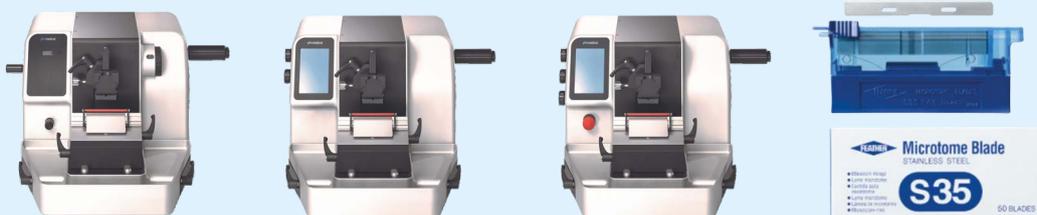


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