



## Laboratory Technology News - Feb 2019

### MedLab congress highlights hacking opportunities in lab equipment and profiles new diagnostics



The MedLab congress was an opportunity for medical practitioners, pathologists and laboratory directors to talk about what is changing in diagnostic testing and what they expect from their laboratories. The congress took place alongside one of the most expensive exhibitions in the world, MedLab Dubai. The report below is not a complete rundown of what was discussed – just a few highlights from papers that I managed to hear.

#### Lab equipment criticised for poor cyber security

The NHS in Wales is having to plug in equipment designed to be run wirelessly because the cybersecurity risks have been inadequately addressed by suppliers, Dr Annette Thomas, director of the Wales external quality assurance scheme at Cardiff and Vale University Health Board, told delegates at the MedLab Congress in Dubai in February. "Most hardware and laboratory equipment don't have good enough WIFI security. This means that we have to hardwire each device which in turn cause infrastructure issues with not enough plug sockets etc'.

The lab system software is used to monitor staff performance too – what equipment was running when, which tests are being run, were they the right ones, was it turned off correctly? All this remote data is very useful in managing and monitoring staff.

Dr Thomas was actually speaking about point of care testing and how it can be networked. She felt that the greatest challenges are in connecting equipment together, but although in theory the plan overall is to integrate all the Hospital and Laboratory information systems, in fact, her hospital is continuing to use different providers. And those suppliers are seldom the first port of call when something goes wrong. They turn first to their in-house IT team, then to the national IT team and only go to the providers as a last resort.

#### Labs are getting it right – even if others are not!

Prof Riad Abdel-Latif Bayoumi of Mohammed Bin Rashid University of Medicine praised the consistency of laboratory results revealed in the 2018 International Federation of Clinical Chemistry (IFCC) survey of 2166 European laboratories in which only one lab did not meet the quality standard.

70% of significant errors in specimen analysis happen before the sample reaches the lab according to Prof Robert Sautter who wants this addressed before molecular tests become the norm: "They are expensive, so before we use them we must eliminate or at least seriously reduce false positives caused by contamination". He had calculated that the Carolinas Lab Network in the US had reduced its costs by \$24 million by reducing their blood sample contamination rate from 7% to 3%. The easiest place to reduce contamination rates was in ER, he told the delegates, because often skin is not adequately decontaminated before drawing blood.

Another of the themes of the conference was the value of good laboratory information systems and the need for these to integrate well with wider hospital information systems. Prof Sautter had used a video to explain how to avoid contaminating samples for wider hospital staff, but equally important had been the use of an information system which tracked who was responsible for drawing each sample; it was linked to a performance bonus system.

Issue 134 - February 2019

#### Download Centre...

- [Download the full briefing](#)
- [Visit the download Centre](#)

#### Trade fairs ...



#### GAMBICA Contacts ...

For a full list of GAMBICA contacts, [CLICK HERE...](#)

### The need for speed leads to local lab functions

A delay of one hour in getting results to physicians results in a measurable increase in mortality and morbidity but blood samples are often left on counters for up to 12 hours before collection.

Prof Sautter advocated the incubation of blood samples at remote sites to be sent to labs for analysis later. As far as practicable he advocated local processing, testing and screening of samples.

### Cardio-vascular disease (CVD) screening moves to NMR

Despite intense screening ( millions of lipids panels are carried out annually) CVD is increasing, with 17.9 million dying each year.

Dr Waleed Tamimi, head of the clinical chemistry lab at King Abdulaziz Medical City in Riyadh asked if lipids are being testing in the most effective way? As diabetes is epidemic and cases are set to increase by 50% in the next two decades, he advocated greater emphasis on looking at the size of lipoprotein particles rather than the absolute amount of cholesterol in samples, with small, dense particles being a marker for insulin insensitivity. Larger particles present a lower risk, and 50% of heart attacks occur in people with normal cholesterol.

Tamimi advocated VAPNMR gel electrophoresis for HDL-P and LPL-P number and size. The US FDA and most national bodies have approved NMR for this application but Tamimi noted that it is not an easy method and needs very expert operators if it is to provide the necessary early indicators of insulin resistance.

### Mass spectrometry – the wave of the future

Prof Dr Jorg Kriegsman, Director of the Trier Institute for Pathology, Trier, Germany advocated the use by path labs of a Matrix Assisted Laser Desorption/Ionisation (MALDI) Biotyper which detects and classifies bacteria and gives the ability to examine lots of different things in one sample. He told delegates who included students, laboratory managers and medics that in future this technology will be used for the identification and classification of tumours, inflammatory diseases, infectious diseases for arthritic markers in synovial fluid and for the cheap and efficient detection of DNA. Other speakers agreed that it is ‘the wave of the future’.

### A whole new superbug

You may be familiar with Carbapenemase (a hospital superbug with a 50% mortality rate now common in western hospitals) but like me, hospital staff in the Middle East were largely unaware of the bug and those who did know about it, imagined that it occurred only in the west.

Prof Manaf Algahtani of Ireland’s Royal College of Surgeons found that his colleagues knew of no instances in their hospitals, a fact he felt was possibly not unconnected with the fact that they weren’t screening for it. However, the growth in health tourism means that infections can happen anywhere and when he looked, he found it. The bug is making headlines around the world and to control it requires active surveillance of patients, lab detection and infection control.

There are 70 bacteria in the family of Carbapenemase Producing Organisms (CPOs) and infection travels easily from person to person with likely sufferers being hospital patients coming from long term facilities or those under acute care. Most carriers are asymptomatic offering a large reservoir of infection. Transmission is person to person and because single rooms are expensive, transmission of CPOs is very likely. The best way to screen, delegates were told, is via cultures or a modified Hodge Test CLSI EUCAST by chromogenic agars or molecular assay.

Patients are commonly found to be infected with more than one CPO and it is important to know which ones in order to know which antibiotics are likely to be effective.

### Reliable testing for sexually transmitted diseases

Many sexually transmitted diseases have no symptoms and are left undiagnosed. As a result 24,000 women a year are becoming infertile.

Top of the tree for detecting STIs according to Dr Daniel Langenstroth-Roewer, product manager for German medical diagnostics firm, Euroimmun, is a new PCR based nucleic acid amplification technique which doesn’t need viable pathogens, just pathogen DNA and has been developed to cover as many as possible targets in one test. This is particularly useful as multiple infections are often present in samples.

He showed the following outcomes for different test types:

Comparative analysis of 82 urogenital samples from patients with suspected STD  
By Baruschke et al., Institute for Pathology, Academic teaching hospital Feldkirch, Austria.

	Real time PCR*	EUROArray STI-11	GeneFlow STD Array
Positive	31 (37.8%)	27 (32.9%)	15 (18.3 %)
Negative	51 (62.2%)	55 (67.1%)	67 (81.7 %)
False positive		0	1 (1.2 %)
False negative		4 (4.8%)	15 18.3
Sensitivity	100 %	70-100%	55-100 %
Specificity	100 %	100 %	77-98 %

\*PCR – Polymerase Chain Reaction – monitoring of the amplification of a targeted DNA molecule in real time.

### Now this might sound dull...

A title like ‘The contribution of lab test naming conventions to the usability and portability of informatics data’ might work better in Saudi Arabia, where distractions are few, than in Dubai - but quite a few people did still turn up at the conference to hear Andrew Turner, the manager for clinical pathology at the Cleveland Clinic in Abu Dhabi make a few caustic remarks about the wisdom of letting the IT department set naming conventions when setting up Lab and Hospital information systems.

Poor consistency in naming, use of out of date names and failing to set easy names for new tests are common failings which result in reports which look poor quality, fail to gain the confidence of medical staff, and most importantly reduce the take up of valuable new tests. Setting names for new tests in particular is often overlooked and may results in a number of tests with similar names which are confusing for the doctors who order the wrong test, can’t understand or use the results and the diagnostic test they needed is not provided. There are two standard conventions for the naming of tests, LOINIC and SNOMED. I’m sure no-one will be

surprised that neither is without issues so the speaker advocated just using your own, but standardised system, after getting all stakeholders involved to agree the format.

### **Genetic screening in the Middle East**

The explosion of genetic mapping products and the vast reductions in time and cost of genetic screening is moving medicine from a 'diagnose and treat' mode to a 'predict and prevent' mode and it has also lead to some immediate practical benefits.

Dr Imran Mirza, chief of the pathology and laboratory medicine institute at the Cleveland Clinic in Abu Dhabi was full of praise for the NHS's world first programme of genetic sequencing but noted that the outcomes of genetic sequencing are puzzling. Most people, he said, are not anxious about the results, and they don't change their behaviour afterwards, even if they are one of the 7% who could benefit from personalised medicine.

In 2018, genomic screening of neo-nates in intensive care in UAE showed that 19% had a serious genetic disorder. Interestingly, although doctors in the Middle East may be less than enthusiastic about genetic counselling, their patients are alert to the issues and ready to take action. If given pre-marital genetic counselling, Dr Mirza said, a large majority of those whose children might face issues choose to end their marriage plans. As a result, rates of marriage to first cousins has reduced from 25% to 7% in ten years.

### **MedLab exhibition report**

The numbers visiting this year's MedLab exhibition were spectacularly high for the first two days. It seemed that people had travelled out to Arab Health then stayed on over the weekend for the start of the MedLab show.

The Gambica pavilion, which this year had 25 participants our biggest ever group, was well sited, right in front of the entrance and the stand height allowed for really good use of the 'Great' branding. You could see the UK pavilion from all around the hall and it raised envious comments from US exhibitors who felt their branding was not quite as strong.

As usual there was a strong showing from Chinese exhibitors but it didn't feel overwhelming and the Chinese area was noticeably less busy than other parts of the show. A number of Gambica members exhibited separately from the UK pavilion including Horiba, Perkin Elmer (who had two large stands) and Thermo Fisher.

The exhibitors saw lots of distributors, but some were a bit disappointed in the number of end users which is a bit puzzling as the conference content was good and quite well attended. However, as distributors are the main way most companies extend their reach in new markets, overall exhibitors were all very happy with the event and hopeful of getting orders. Estimates of the amount of business they expected to do as a result of the event totalled £900,000 although 16 of the 29 exhibitors did not feel in a position to make any projections.

Feelings expressed in the survey were very positive with 21 companies saying the event had met or exceeded their expectations, 22 saying they would definitely book for next year, two saying they probably would and one that they possibly would. The average number of leads taken was 97 but for a number of companies it was as high as 200. On average the exhibitors scored the event at 7.9 out of 10.

### **Some companies kindly provided testimonials:**

Centurion Scientific: "We find Gambica really helpful. It's the whole pavilion. The community is great, it's like a family. And being with all the other companies we get a lot of interest as manufacturers, in the UK and we are all UK based.

Analox Instruments: "I have really enjoyed exhibiting with GAMBICA, they make it really simple and everything runs smoothly."

Global DX: "We got 22 new country leads on the first day of the show."

Monmouth Scientific: "GAMBICA membership is very good for us, we have been introduced onto standards committees which enables us to have a say on how products are identified throughout Europe." No statistics are yet available from the organisers on footfall etc – wonder why?

**Copyright © 2016 GAMBICA Laboratory Technology . All rights reserved.**

| [HOMEPAGE](#) | [LABORATORY TECHNOLOGY](#) | [MEMBERS DIRECTORY](#) | [PUBLICATIONS](#) | [TRADE FAIRS](#) | [CONTACT US](#) |

Powered, designed and maintained by [FROOTES MEDIA](#)