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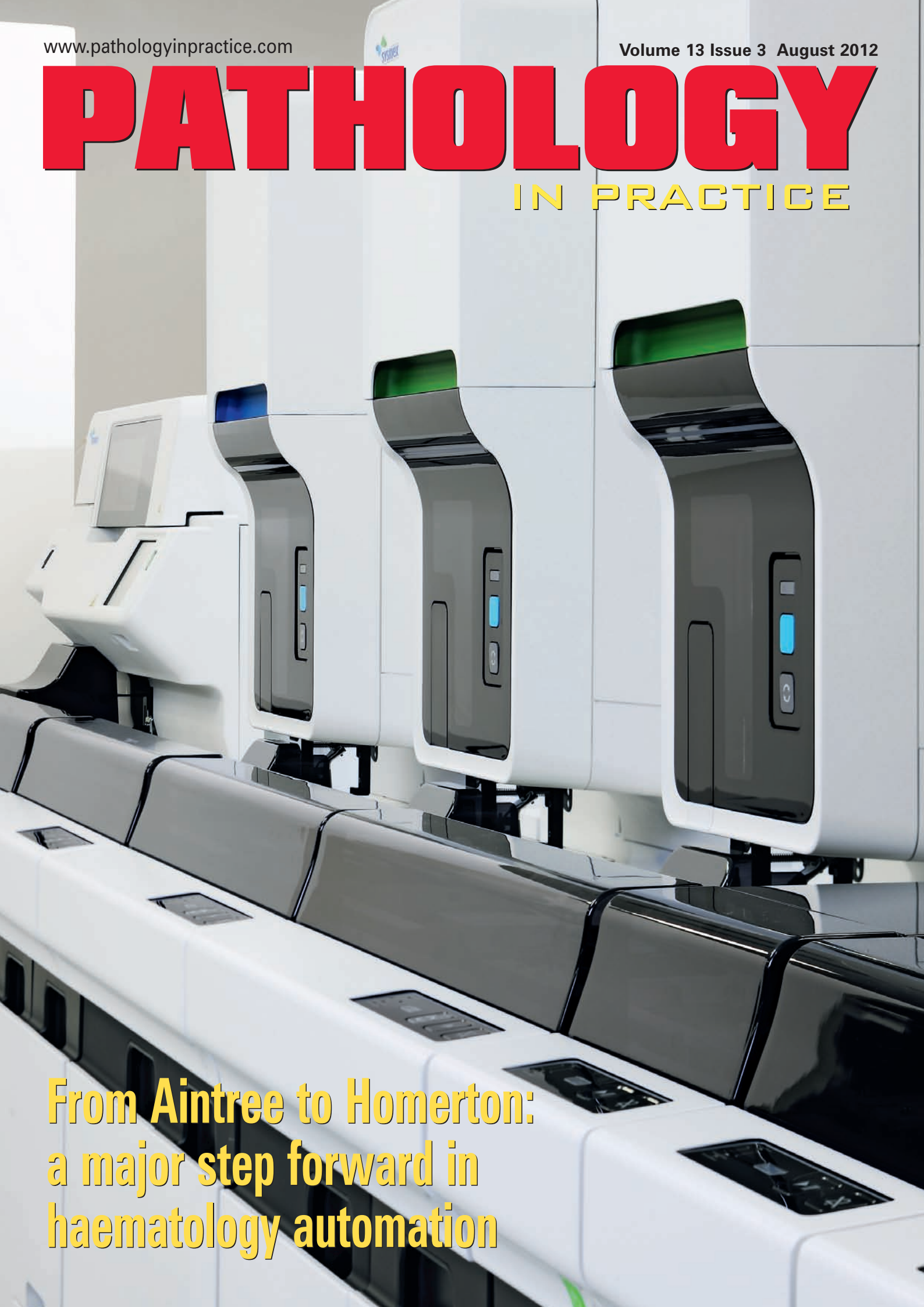

From Aintree to Homerton: a major step forward in haematology automation

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The experiences of two large hospital trusts demonstrate the advantages of working with Sysmex UK and using the company's range of fully automated haematology and coagulation solutions.

With the challenging requirement to make huge efficiency savings across all departments of the NHS, it is imperative that wherever procurement situations arise, the winning bidder is able to offer and deliver a highly efficient solution which provides maximum benefits to the NHS in the form of efficiency and stability over the long term.

The procurement of replacement laboratory analysers is always a major undertaking for any haematology department as it involves a considerable amount of time and resources, culminating in the selection, purchase and implementation of the chosen solution.

Mersey beat

The haematology department at Aintree University Hospitals NHS Foundation Trust in Liverpool became a Sysmex customer for the first time in 1995 and since then it has formed a solid and highly beneficial working relationship with the Milton Keynes-based company. So, when the recent tender for haematology and haemostasis equipment was announced, the laboratory staff knew that equipment suppliers bidding in the tender faced a huge challenge to improve on the system that was already in place.

Future-proof solution

Haematology laboratory manager Tracey Smith-Straney explains: "The Sysmex HST system was installed in 1999 and this was a future-proof solution that enabled us to take on additional workload without the need for additional staff. To improve on this was always going to be difficult, so the overriding outcomes from the tender had to ensure we didn't take a backward step with our choice of supplier and enable us to redeploy a member of staff elsewhere in the department."

This meant preparing a tender specification that was ambitious but included desired outcomes such as improving turnaround time, improving the quality of results, maintaining efficiency (300 sample throughput per hour) and increasing the functionality of the automated solution.

The supplier best placed to meet the specification was Sysmex UK, and, before discussing the post-tender process, Tracey was keen to make an important point. She said: "We have always found Sysmex UK to be a highly professional outfit with an extremely customer-focused approach to business. It has always adopted an ethical approach to business, so much so that it is prepared to complement its competitors and talk favourably about competitor products. Its behaviour throughout the tender process was no exception and we found Sysmex to be very responsive to our queries without ever hassling us."

'Increased throughput from the fully automated solution has facilitated an improvement in turnaround times for results'

Comprehensive diagnostic information

The Sysmex solution was made more attractive by the inclusion of the new XN haematology analysers as part of the new XN-9000 track configuration. Add to this the new TS-500 tube sorter, SP10 slide maker and the InteRRliner automated ESR system and the outcome was everything that the laboratory wanted, and more. Tracey said: "The new XN analysers have proved to be very fast and get through the workload with no problem. They offer new analysis parameters that provide more information, and this results in a better film review rate when run in system mode than we have seen before. We will only make a film for microscopy examination now if we believe it will truly add value to the comprehensive diagnostic information that the XN delivers.

"On a more practical level, the XNs have a small footprint and run very quietly. We have also been very pleased with the impact of the TS-500 tube sorter. This module on the XN-9000 has replaced some of the work of a medical laboratory assistant (MLA). The TS will pick out samples that require an ESR, samples that require re-analysis and samples that can go to storage. As a result, I've been able to use an MLA elsewhere in the laboratory to assist the biomedical scientist staff."

Sounds from East 9

At the opposite end of the country is Homerton University Hospital NHS Foundation Trust, situated in Hackney and within walking distance of the London 2012 Olympic Village. Currently, the streets of East London are adorned with directions and 'badged-up' volunteers at every turn. In contrast to the situation outside the hospital, inside it is business as usual and the haematology laboratory is a picture of calm, which is now normal.
As laboratory manager Yvonne Kelly explains: "Since we installed and commissioned the new Sysmex XN-9000 the laboratory is much calmer. The biggest impact has been the rapid auto-validation and authorisation of completed samples, which means the result is processed and transmitted much more quickly and so we don't have to spend time continually answering the telephone to clinical staff chasing results."

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Optimum workflow

This improvement in workflow was just one of the objectives that Yvonne wanted to deliver when the tender process to upgrade the laboratory automation began. In common with many laboratories, Homerton had serious issues with limited floor and bench space, lack of staff and increasing workloads. "We needed to become more efficient and that was only going to be possible with an improvement in workflow," Yvonne points out. "We knew that we would only achieve our optimum workflow goals with 'tracking' in a fully automated and connected solution, and Sysmex was the only supplier able to deliver that solution immediately."

In fact, the tender process was relatively straightforward and the other overriding requirement was to meet the footprint limitations. "There really isn't much room in the laboratory and this presented a serious challenge for all prospective suppliers, and we are pleased to say that Sysmex was able to deliver a fully automated and streamlined solution with a small enough footprint to meet the space limitations."

System validation

It was the lack of bench space and staff time that meant the tender process didn't include on-site evaluations of all prospective suppliers on the shortlist. Once the choice was made, however, the process of validation of the new system had to begin in order to understand how best to utilise the many new features available in the state-of-the-art haematology analysers.

The evaluation process was undertaken by senior biomedical scientists Adeyinka Braimoh and Eva Nkansah. Eva had previously used Sysmex haematology instrumentation during her time at The Royal Free Hospital and this helped the transition process as the staff adjusted to new technology. The process of validation was thorough and planned, but it threw up some surprises. As Eva explains: "I knew that the XN technology had been thoroughly evaluated so there were no concerns in terms of delivering accurate and reliable results, but there were local issues that we needed to address. We focused on all the reportable parameters initially and performed comparability studies on 600 full blood counts against the outgoing technology, and this had to include stability and linearity studies."

The outcome of the linearity studies provided the laboratory with an unexpected improvement, as Eva explains: "In this part of London the prevalence of sickle cell anaemia is particularly high so we frequently see haemoglobin levels below 5 g/dL. So, when we achieved Hb linearity down to less than 2 g/dL we realised that this would save us a lot of additional analysis."

> 'The Sysmex solution was made more attractive by the inclusion of XN haematology analysers as part of the new XN-9000 track configuration'

Typically in most haematology departments that are incorporating new analytical technology, the focus also falls on the film review rate (FRR) of new versus old. Once again Eva was delighted with the findings: "The film review rate dropped significantly due, in no small part, to the quality of the nucleated red blood cell count (NRBC) on the Sysmex XN analyser. We process a lot of neonatal samples every day and, because the XN counts NRBCs separately, the white cell differential is reliable and 'true'. This, in turn, means that the laboratory isn't spending unnecessary time making, staining and analysing blood films on neonates."

Formula 1

The impact of the increased throughput from the fully automated solution has also been felt in the laboratory and has facilitated an improvement in turnaround times for results. As Eva points out: "We load the samples in the start area and we may not see them again, it's all hands off from then on."

The increased throughput has led to the staff assigning appropriate names to their new analysers. It is commonplace for analysers to acquire names from their operators, and Analyser 1 and Analyser 2 are often replaced with Tom and Jerry or Bart and Lisa; however, the staff at Homerton have taken it a step further by renaming their analysers and

other components of the automated system McLaren, Ferrari, Red Bull and Lamborghini. Eva explains: "Some of us are fans of motor racing and we felt that these were more appropriate names when you think about the increased speed that this solution now delivers." Although 'tongue in cheek', the realisation that the speed of throughput is greatly improved is part of the overall impact that the new solution has had on the laboratory, its staff and the clinicians that rely on the results from haematology.

Yvonne Kelly explains some more benefits created by the new automated solution: "Many of the manual chores that MLAs had to perform are now automated and this means that I have the equivalent of 2.5 additional staff that I can use more effectively in the laboratory. For instance, it used to be the job of an MLA to scan every sample that completed a full blood count (FBC) to see if any other tests were required. Now, the tube sorter (TS-500) performs this task and moves the sample to a suitable rack for its next test, or into a rack for storage. Similarly, the SP-10 automatically makes and stains any blood films that are required, without any MLA intervention, which also saves the daily task of making up stains."

Since the Sysmex XN-9000 was installed in the Homerton laboratory, rapid auto-validation and authorisation of completed samples has meant that results are processed and transmitted much more quickly.

Common goals achieved

While it is important to understand the technology and how best to utilise it in the laboratory, it is equally important to know that the after-sales service from the instrument supplier is going to enable the department to deliver a reliable 24/7 service to the clinicians.

In common with the haematology laboratory at Aintree, the Homerton staff already knew of the quality of service that they would receive from Sysmex in the post-sales relationship. The Sysmex CS-series coagulation analysers had already been operating in the laboratory for two years when the tender process began, and Yvonne knew that she was in safe hands. As she puts it: "We want to have a service engineer on site when we want them here and we know that Sysmex UK can deliver that."

The fact that Sysmex was able to deliver all of this has been especially pleasing for the staff in haematology at Aintree as it enables them to continue their longstanding relationship with Sysmex UK, which, according to Tracey "give us absolute confidence in the analysers and the support, and that is one less thing for me to worry about." The haematology laboratory in Homerton, on the other hand, had no experience of Sysmex haematology analysers prior to the recent tender, but it has been equally pleased, if not more so, with the outcome.

The procurement decisions at both Aintree University Hospitals NHS Foundation Trust and Homerton University Hospital NHS Foundation Trust have been highly successful and, in many respects, have exceeded their common goals to move the laboratory forward in terms of quality of results, turnaround time and an improved working environment.

Further information is available from:
Sysmex UK
Sysmex House
Garamonde Drive, Wymbush
Milton Keynes MK8 8DF
Tel: +44 (0)870 902 9210
Fax: +44 (0)870 902 9211
Web: www.sysmex.co.uk