Lasse Lehtonen, Diagnostics Director at HUSLAB, pictured with Siemens Healthineers lab automation.

Photo: Tuukka Ervasti

Keeping a Focus on Satisfaction in a Time of Complex Change

How do you measure success when implementing the largest, automated multi-laboratory solution in Finland? For the management team at HUSLAB, one measure stands above the rest - patient, physician, and staff satisfaction.

Tiina Mäki, Director of Clinical Chemistry in the core laboratory in HUSLAB Meilahti, describe the tender process.

"The throughput of STAT samples are critical for our customers and we are looking forward to providing better service for the most critical patients."

Lotta Joutsi-Korhonen, MD PhD, Chief Physician, HUSLAB

In southern Finland you can find one of the largest laboratory networks in the Nordics – HUSLAB. HUSLAB is part of the Helsinki University Hospital network and the complex, multi-site organization provides diagnostic services across the Uusimaa, Kymenlaakso, and South Karelia regions.

Managing diagnostic services across hospitals, laboratories, point-of-care settings, and outpatient clinics, requires 24-hour service and intensive logistics operations to meet the needs of such a vast area.

"All hospitals where we have laboratories are 'on call' hospitals, so there is an emergency ward which works 24/7. Then of course, we have many specialized clinics," said Tiina Mäki, Director of Clinical Chemistry in the HUSLAB core laboratory in Meilahti, located just north of downtown Helsinki. "In our core lab alone, samples come in three times a day from about 100 primary healthcare laboratories in Uusimaa as well as other areas in Finland."

But what makes HUSLAB special is not necessarily the scale of the operation, but its attention to detail. HUSLAB prides itself on the level of service provided to physicians, the happiness of their staff, and a personal commitment to patients.

For example, HUSLAB is uniquely connected to patients in a way that many laboratories are not – their staff perform the majority of sample draws on the patients across the region.

"Our technicians first go on their rounds to take the samples, and then come back to the lab and analyze the samples," said Mäki. "So, there is a connection between the patient and the analytics. Our personnel remember why we do this work, because they see the actual patients who are impacted."

While using laboratory staff for phlebotomy is rare in other countries, it is an important component of the quality control and lean methods employed at HUSLAB. This approach ensures that there are minimal tube-type errors or relabeling, and the lab has tighter control over the pre-analytical process, which can reduce sample draw issues such as hemolysis.

Over the years, HUSLAB has continued to consolidate complex and advanced testing operations in their core laboratory, while expanding routine testing in satellite labs. Still, it was obvious to the lab management that growing test volumes and pressure to do more with less meant a change was needed at HUSLAB.

Choosing innovation

HUSLAB looked to Siemens Healthineers as a partner for a new laboratory concept, a provider that could bring new technologies, strong project management, and an understanding of HUSLAB's unique operations.

The focus for HUSLAB was the implementation of an efficient automation system that could support multidisciplinary testing, and new ways to enhance their chemistry and immunoassay testing operations.

"This was such a huge tender process. The total testing volume and the number of laboratories involved is so big. We were especially interested in solutions that could speed the processing samples on the analytical platforms," said Mäki.

The solution from Siemens Healthineers fullfilled HUSLAB's requirements for chemistry and immunochemistry analytics and automation solution. The specific criteria were pre-set in the tender process. Main criteria include pricing, turn-around-time and quality requirements. The Atellica Solution immunoassay and clinical chemistry platform brings with it a unique bi-directional sample transport system, high throughput immunoassay testing capabilities, and automatic quality control (QC) and calibration with on-board refrigeration.

"The throughput of STAT samples are critical for our customers and we are looking forward to providing better service for the most critical patients," said Lotta Joutsi-Korhonen, MD PhD, Chief Physician at HUSLAB. "This solution manages calibrations differently - more automated. So, these are the bonuses that we understand that this new Atellica technology will bring us."

But change can bring uncertainty and stress, and bringing in new analyzers, IT systems, and automation to multiple laboratories means that a lot can go wrong if planning is not precise and commitment to meeting the needs of staff, clinicians, and patients isn't paramount.
"The successful implementation of such a large project requires experience and planning," said Joutsi-Korhonen.

HUSLAB is the largest university hospital network in Finland. The largest laboratory (the core laboratory) is in Meilahti, Helsinki, with ten smaller laboratories (satellite laboratories) in addition to the core.

The core laboratory is the most automated laboratory in Finland to cope with about 25 000 samples daily. Approximately 10- 15 000 will be processed on the Siemens Healthineers automation, which consolidates and automates the pre- and post analytical processes for all the connected instruments.

Dr Deepak Nath, President and Head of Laboratory Diagnostics in Siemens Healthineers visited the core laboratory in Helsinki to discuss the implementation so far and reiterate the commitment to HUSLAB.

Keeping the schedule keeps things positive

The project started off on an aggressive schedule but keeping that schedule has been key to maintaining staff and management satisfaction. This required intensive planning from the outset to first transition satellite labs and then build temporary workflows for samples while there were changes in the core laboratory with automation and the main chemistry and immunochemistry analyzers.

"We are still in a transition period, so we have tried to ease the load of samples in the core lab," said Joutsi-Korhonen. "So, we have diverted some sample processing to our other laboratories to help reduce pressure in the core lab. The STAT track is now fully operational. We believe that managing STAT samples separately for those extremely urgent samples is essential."

Simulating the workflow of such a large volume of samples is critical to ensure that a laboratory, like HUSLAB, meets their key performance metrics, like turnaround time, even during transition phases.

Siemens Healthineers carefully analyzed data supplied by HUSLAB and determined optimized testing distributions based on the number of samples and the repertoire of tests available.

"We process tens of thousands of samples a day," said Joutsi-Korhonen. "I think Siemens has done a good job on this. In addition, Siemens has also analyzed the workflows and determined what they will be when we switch back into routine operation."

Both Joutsi-Korhonen and Mäki give credit to the internal project manager Tuula Metso, PhD, and the process manager Christel Pussinen, PhD, as well as other chemists, clinical chemistry physicians and laboratory technicians at HUSLAB for the expertise and dedication they have shown, working hard to make changes possible -- even when there are bumps in the road.

"There were instances where instruments were not working perfectly straight away," said Joutsi-Korhonen. "But, what we have been impressed with, is that when we have had a problem, Douglas Coull (Siemens Healthineers project manager) would say, 'Well the expert is already on the plane flying to Helsinki.' So, that has been good because we feel we are not alone with a problem."

"The successful implementation of such a large project requires experience and planning."

Lotta Joutsi-Korhonen, MD PhD, Chief Physician, HUSLAB

It takes a well-coordinated team to ensure success. Here represented by Kaisa Salmenkivi (to the left) and Anne Mykkänen (HUSLAB), Deepak Nath and Douglas Coull (Siemens Healthineers), Lasse Lehtonen (HUSLAB), Jarno Eskelinen and Kaisa Rosenström (Siemens Healthineers).

"To facilitate the transition, over a month-long period, we provided the clinicians with two results for certain critical tests, one from each technology, so that they could compare..."

Lotta Joutsi-Korhonen, MD PhD, Chief Physician, HUSLAB

Making sure staff are satisfied

Perhaps the people who feel the change the most are the staff in the laboratory. That's why one of the metrics most closely followed by the lab is employee satisfaction.

"Of course this type of change can be quite challenging," said Mäki. "We looked at last years' personnel barometric meter results and of course the impact of the increased workload was evident because of the change. But on the other hand, we felt that it is a good sign that the markers for motivation and the feeling of 'being an expert', were really high and were higher than the previous year."

Staff change management was a large component of the project, not only with intensive training by the Siemens Healthineers, but also with training and support from within HUSLAB. A group of dedicated laboratory technicians and a couple of chemists have been instrumental in providing comprehensive training across the network. The result is that HUSLAB staff have learned new skills and technologies while embracing change in the laboratory.

"Basically, we feel that it has been really hard work. However, people have been mostly positive," said Joutsi-Korhonen. All the laboratories in the HUSLAB network operate for twenty-four hours, seven days a week. Training staff that cover the night shift can also be problematic. It required cooperation from all of HUSLAB's laboratory managers and the head technicians who plan the shifts.

"We trained the night shift during the day," Mäki said. "To make training more efficient, pre-training material was provided for everyone to read before they went to the training."

Siemens Healthineers also allocated trainers to each laboratory and every lab knew who their contact person was.

"But where Siemens have been good, and they have been hands on, is more with the setting up of the tests - helping to calibrate and run the tests that we were struggling with first, problem solving and running the new track. It has been quite impressive that Siemens has been so involved," said Mäki.

Keeping clinicians satisfied

Another aspect of the new system that HUSLAB identified as a potential issue is how the change would impact clinicians.

When switching between analytical instruments, it is typical that test results on one system can be different from the results of a similar test run on another manufacturer's system. This is due to a multitude of factors, perhaps different pieces of an analyte are being detected, or there is a different analytical technology in use. So the result, while accurate, could be a problem for doctors who are not familiar with new reference ranges and what a specific result says about a patient's condition.

"Some of the tests are really working perfectly well and correlate with previous systems," said Lotta. "Others are

analytically correct, but the results differ from those of our previous supplier. So, the clinicians must change their mindset and integrate them differently."

Managing the shift in results on a clinical level required a close collaboration between the laboratory and clinicians. It's a change management component that is ongoing, but critical to patient care.

"For example, tumor markers are results that clinicians closely follow," said Joutsi-Korhonen. "It is very important for the patients as well to see if the level is going up or down, or how stable it is. If we switch to different technologies overnight, there can be a very dramatic change in the results. So, we had long discussions with the clinicians on how to manage results and how to talk to patients about these changes."

To facilitate the transition, over a month-long period HUSLAB provided physicians with two results for certain clinical tests, one from Siemens Healthineers technology, and also results from their previous systems, so physicians could compare them at no cost.

"This gave our clinicians time to adjust to the new level. Additionally, we also offered the option of sending samples to a different laboratory so that they could get a second result if they wanted," said Joutsi-Korhonen.

This type of attention to the needs of clinicians is something that is continuing to help HUSLAB manage the expectations and needs of their customers and patients. The result is that clinicians are not only informed about the change, but they are part of it as well, helping the laboratory to identify which tests needed to be more closely scrutinized.

"This required quite long discussions with the clinicians. But, this is something we did together," Lotta said. "Now they are on board with the changes."

The future looks bright

The partnership between HUSLAB and Siemens Healthineers is just beginning. With a contract of seven plus two years, there is a lot of time to build on the experience, knowledge, and service that HUSLAB is already providing during the initial project installation phase.

"We are really looking forward to it," said Mäki. "We are doing all the hard work now to learn about the methods as well as the instruments so that we know how to use them well in the coming years."

Currently, all the satellite laboratories are providing results routinely. The plan for a fully functional core laboratory, reporting routine and STAT results twenty-four-seven is almost complete. The anticipated "go live" date is April.

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