



Christian Maegaard,
project manager in technology and automation

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- » Achieving substantial savings and improved diagnoses
- » Continuous utilization of the lab's capacity
- » Not having to depend on personnel for the physical transport of samples
- » The system has proved to be a solid financial investment as well

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Improved patient care and financial savings – a lightning-fast pipeline for blood

Christian Maegaard is a project manager in technology and automation at Odense University Hospital in Denmark.

When he first heard about a dedicated pipeline system for the rapid transport of blood samples – the Tempus600 from Timedico – he was so enthusiastic about its potential that he and the hospital ended up as a sparring partner for the further development of the system. Today, the hospital has installed six Tempus600 stations, achieving substantial savings and improved diagnoses.

“I heard about the Tempus600 from the lab manager at Vejle Hospital, when the hospital in Kolding had just bought the system”, says Maegaard. “My immediate thought was that if it worked, it could save us a fortune.”

At the time, Odense University Hospital was debating whether to use a traditional pneumatic system to transport blood samples from its outpatient clinic. But the idea of a lightning-fast pipeline dedicated to such samples opened up the possibility of additional benefits.

“There are two critical factors that affect the quality of a blood sample after it's drawn: temperature, and the time that elapses between drawing the blood and analysing it”, explains Maegaard, “With the Tempus600, we could cut the transport time for the samples drastically and free up manpower for other tasks – and by doing so, obtain quicker and better analytic results.”

Sparring partner for the automatic feed unit

Maegaard contacted Timedico and was invited to see a demo model of the Tempus600 that had been set up at the company

factory in Bording, Denmark. Here he found proof that the system worked. And he received further confirmation when he saw the recently installed system at Kolding Hospital.

“It functioned as it was designed to”, says Maegaard. “But I had one major suggestion: it should be possible for samples to be fed automatically into the system. Otherwise, we weren't interested.”

Odense University Hospital and Timedico entered into an agreement, in which the hospital would buy a system for its outpatient clinic and

the company would install an automatic feed unit as soon as it was developed. At the same time, Maegaard and the hospital became a sparring partner in the development of the feed unit, emphasising the particular needs of a hospital – including cleaning, hygiene and safety.

Enhanced utilization of the lab

The collaboration led to a feed unit that had room for four racks with seven sample tubes apiece. As a result, the outpatient clinic can now send a large number of blood samples directly to the lab for analysis as soon as they are drawn. And that means better and more continuous utilization of the lab's capacity – and not having to depend on personnel for the physical transport of samples.

In the lab, the 140-metre long pipeline feeds into a sorting system that distributes the samples in eight different drawers. The arrangement simplifies the work of the lab assistants.

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Maegaard explains that the chief advantages are the time saved in transport and the automation of sample handling. “The lab technicians also save the time needed for handling processes, so they have more time for what’s most important.”

Clinical test confirms benefits

After the installation of the Tempus600 in the outpatient clinic, Christian Maegaard really had his eyes opened to the system’s advantages and potential. And a clinical test confirmed both its declared and its anticipated benefits.

The test demonstrated that the system would save both time and money. Moreover, it became evident that using the Tempus600 would lead to great uniformity in the analyses than for manually transported samples.

With manual transport, it typically took 20 minutes from when the blood was drawn to when it arrived in the lab. But transport time with the Tempus600 was a matter of seconds. That means that the analysis results come back that much faster.

“It makes a world of difference for treatment – and for the patients”, declares Maegaard. “It’s not just that the Tempus600 is cost-effective when sample volumes are high – it actually improves care in acute cases where time is critical.”

For these reasons, Odense University Hospital also decided to install four Tempus600 stations near its ICU admission area – the longest with a pipe length of nearly 300 metres. These stations have eased the workflow in the unit dramatically.

Faster results, more accurate diagnoses

“We have approximately 75 to 100 acute patients a day, with varying diagnoses, including cerebral haemorrhages, heart attacks and internal bleeding. For the last group, time

is of the essence, since rapid intervention results in fewer complications”, says Maegaard. “But with the Tempus600, there only goes 29 seconds from when the blood is drawn to when it reaches the lab. That leads to quicker results, and to quicker and better treatment. The system thus helps us obtain more accurate diagnoses and provide better patient care.”

He elaborates: “From the moment a doctor sees a patient, he or she cannot have too much information – and blood can reveal a great deal. It’s important to get as much information as possible – and the sooner that lab results are available, the sooner the doctor can treat the patient.”

In the laboratory, the four ICU pipelines empty into a special high-priority drawer. From there, the samples are immediately queued for analysis.

“On average, we can get results back in less than an hour – from when the blood is drawn to when the results are ready – and often they’re ready in less time”, says Maegaard. “The lab facility automatically sends the findings to the patient’s electronic journal, so that the doctor can see them on a computer right away.”

The university hospital analyses between 5000 and 6500 blood samples every day. Of these, between 1500 and 2000 are conveyed to the lab via the hospital’s five Tempus600 systems. In addition, the Svendborg branch of the hospital has a Tempus600 system running from ICU to lab.

Besides being a tool for improving workflow and reducing result times, the system has proved to be a solid financial investment as well.

“We’ve already succeeded in saving money, as the Tempus600 pays for itself fairly quickly,” says Maegaard – who is now at work on further automating the handling of blood samples in the lab itself.

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