

Tempus600®

Case studies: Customer experiences



TEMPUS600®
One-touch for better treatment

 **SARSTEDT**

“ Previously the departments expected to get test results within 1.5 hours. Now they start calling us if they haven't received the test results in 50 minutes. ”

Bob Wiegers, Head of laboratory, Clinical Chemistry Department



How a targeted initiative to optimise the transport of blood samples proved to be highly effective

Every year, at the well-known and highly regarded Dutch Hospital Elisabeth-TweeSteden Ziekenhuis (ETZ), Tilburg, 380,000–460,000 samples are sent from the Phlebotomy Department and 109,500–146,000 samples are sent from the Emergency Department.

In 2015, hospital management wanted to improve patient treatment by making the transport of blood samples more efficient. Fast and predictable response time was identified as crucial in order to speed up ambulatory treatment and efficient patient discharge.

Thorough evaluation of solution

Bob Wiegers, Head of the laboratory at the Haematology and Clinical Chemistry Department, evaluated the Tempus600® system and found it suitable to the hospitals need for streamlining the transport of blood samples. The laboratory subsequently recommended the system to hospital management and everyone has been delighted with that decision since Tempus600® was installed at the hospital.

“Tempus600® meets our expectations and we are very happy with the system. It is easy to use, and you only need to touch the samples once. Today, the transport time for blood samples is significantly reduced, and the combination of fast, dedicated sample transport and total laboratory automation has dramatically improved the total turnaround time by at least 30%”, explains Bob Wiegers.

The challenge

The hospital wanted to streamline transportation of blood samples in order to improve patient treatment

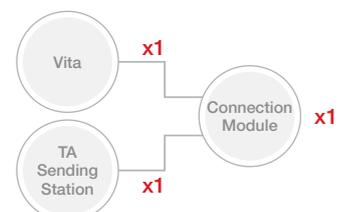
The solution

Implementing Tempus600® and streamlined sample flow in the laboratory.

- Blood samples are transported through the pipeline over long distances (350 m and 450 m)
- The samples land in a Sysmex/GLP track System in the fully automated laboratory
- From there, they are automatically transferred to the track for analysis.

The benefits

- Turnaround time for blood samples is improved by 30 %.
- Sample flow in the laboratory have been optimized, freeing up resources
- Less hemolysis in blood samples



“ The main improvement is the speed and the fact that haemolysis is reduced because the samples can be transported much quicker than before. ”

Jens Hastrup, Clinical Biochemist



Saving crucial time in the Acute Paediatric Department

In 2013, Kolding Hospital, Denmark, installed the Tempus600® system in their Acute Paediatric Department with the primary objective of speeding up the analysis of acute blood samples in the laboratory.

Today, all samples from the department are sent through the Tempus600® system. The system has been running 1200 samples a month since it was installed. Transportation time is only 40 seconds for acute samples, which results in savings of 30–60 minutes. This is a huge time saving factor and results in better treatment.

Small tubes are not a problem

At the Paediatric Department, the samples are collected in special micro tubes. The micro tubes are labelled with barcodes, placed in larger tubes also labelled with barcodes, and secured for safe transportation. These large tubes are dispatched via the Tempus600® system and placed into the fully automated Sysmex/GLP systems track, which registers and places them in a special output section. From here, they are handled manually in the microanalysis process.

Staff use Tempus600® to do the work

“The most significant impact on the staff’s daily routines is, that they no longer have to take the samples from the Paediatric Department to the laboratory several times a day, which is a return journey of 600 m. Now they can

stay in the department, collect the samples and use the Tempus600® system to send them to the laboratory where the staff handle and analyse them” explains Jens Hastrup, Clinical Biochemist at Kolding Hospital.

The challenge

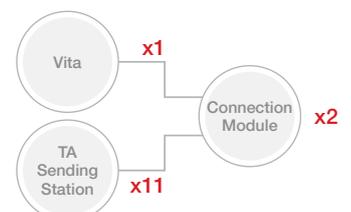
To speed up the analysis of acute blood samples from the Acute Paediatric Department.

The solution

Installing the Tempus600® system in 2013.

The benefits

- Time saved on transportation
- Eliminate handling – saves time
- Risk of haemolysis is minimised



“ On average we get results back in less than an hour – from when the blood is drawn to when the results are ready – and often they are ready even faster. It makes a world of difference for treatment and for the patients. ”

Christian Maegaard, Project Manager in technology and automation



How a lightning fast pipeline for blood samples provided improved patient care and financial saving

“I heard about the Tempus600® from a colleague, when the hospital in Kolding had just bought the system, and my immediate thought was that, if it worked, it could save us a fortune.”, says Christian Maegaard, Project Manager in technology and automation at Odense University Hospital in Denmark.

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

After seeing a demonstration model set up at the Timedico head office in Bording, Denmark and, later, a recently installed system at Kolding Hospital, the decision of investing in Tempus600® was made – and the results have more than met the expectations:

“With the Tempus600®, it takes only 29 seconds from when the blood is drawn until it reaches the laboratory. That leads to quicker results, and to quicker and better treatment. The system helps us obtain more accurate diagnoses and provide better patient care.”, says Christian Maegaard.

The challenge

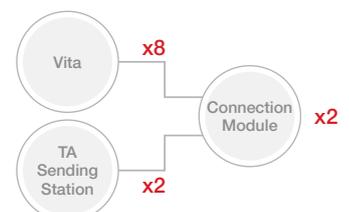
The need to cut the transport time for blood samples – especially in acute cases where time is critical.

The solution

Installing Tempus600® solution – a lightning fast point-to-point line dedicated to the transport of blood samples. By doing so, the hospital has reduced the transport time of blood samples from an average of 20 minutes to 29 seconds.

The benefits

- Faster results, more accurate diagnosis and better treatment
- Not having to depend on personnel for the physical transport of samples has resulted in substantial savings and freed up competences
- Secures continuous utilisation of the laboratory capacity



“ The main advantage of Tempus600 is the significant reduction in the turnaround time for acute blood samples. It is good for the patients, who will get correct and optimised treatment faster. We have increased patient safety and, ultimately, it can save lives. ”

Associate Professor Andreas Matussek, Director of Laboratory Services



Three Swedish hospitals and their patients benefit from the speed of Tempus600®

Nearly 200.000 blood samples are taken each year, across these three hospitals in Sweden.

“Before Tempus600® there were many handling and manual steps involved in getting blood samples to the laboratory, either by a traditional pipeline or by technicians walking the blood samples there. We ran a test showing the time spent, from when a sample was taken until we got it at the laboratory, and it really was an eye opener.”, explains Andreas Matussek.

Focus on reducing turnaround time

Andreas Matussek did not know of Tempus600® when he started a project at the three Jönköping hospitals to improve the efficiency of the laboratories.

“I saw the Tempus600® movie on YouTube and thought: ‘Nice invention’. We then visited a Danish hospital to see the system in use, and I was convinced right away that the concept could solve our transportation problem,” says Andreas Matussek. The results did not disappoint. “The turnaround time for acute blood samples has been significantly reduced and we have increased efficiency, that is certain.”, says Andres Matussek.

The challenge

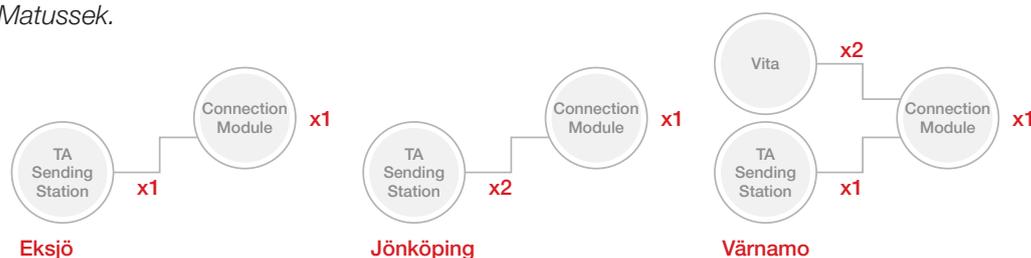
A project was initiated with the aim to improve patient safety by looking at turnaround time, efficiency and the whole handling of samples from when they were taken until the analysis results were reported.

The solution

Installing Tempus600® – a pipeline dedicated to small clinical samples. The system has been installed at all three hospitals from the emergency department to the laboratory.

The benefits

- Minimises the handling time by the staff and increases efficiency
- Tests showed the same blood quality
- Nurses and technicians can spend their valuable time at the emergency departments or in the laboratory



“ The total turnaround time for blood samples has been reduced from 40 to 20 minutes with less resources involved. When doctors receive test results earlier, there is less waiting time for patients in the ER. ”

Dr. Rosada, Head of the Emergency Room



Faster treatment of urgent patients, with fewer resources, is now a reality at well-known Italian hospital

At Ospedale dell' Angelo – a brand new, high-tech hospital in Venice, Italy – management wanted to reduce patient waiting times in the Emergency Room (ER) and, at the same time, improve treatment with fewer resources needed.

The Tempus600® system was the solution to this challenge. Today, blood samples are sent directly, one by one, from the ER to the laboratory, speeding up the delivery, processing and the return of analysis results. According to Dr. Rosada, Head of the Emergency Room, the total turnaround time for blood samples has been reduced from 40 to 20 minutes with less resources involved. Staff must no longer carry urgent samples from ER to the lab – instead they can stay within their own department and take better care of the patients.

No time-consuming packing and unpacking of samples is necessary. The new innovative way of transporting blood samples replaces the handheld delivery that was previously carried out by staff. Blood samples were collected at a single point and placed in a special container. The transfer took place when necessary or when the phlebotomist had the time to walk to the laboratory with the container full of test tubes.

“Basically, we save human resources because staff no longer have to spend time carrying blood samples to the laboratory. Consequently, doctors receive the test result

earlier and there is less waiting time for the patients at ER,” says Dr. Rosada, Head of the Emergency Room.

The challenge

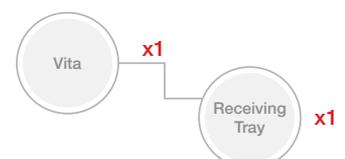
To reduce the patient waiting times in the Emergency Room and, at the same time, improve treatment with fewer resources needed.

The solution

Installing the Tempus60® system in 2017.

The benefits

- Total turnaround time for blood samples reduced by 50 percent resulting in less waiting time for patients in Emergency Room
- Saves human resources because staff no longer have to carry blood samples to the laboratory
- Faster test results benefits the patients



“ It cuts 30 minutes off the total time from when the sample is taken until the result of the analysis is ready. ”

Professor Dr. med. Matthias Nauck, Laboratory Manager



Efficient transport of blood samples ensures significantly faster analysis results

The time saving factor was the main reason for the decision to set up the unique pipeline, Tempus600®, at the Greifswald Universitätsmedizin hospital in Northern Germany in May 2014.

It really saves time – ultimately saving lives

“The technicians do not handle anything from when the sample is taken at the emergency department. That cuts 30 minutes off the total time from when the sample is taken until the result of the analysis is ready” says the Laboratory Manager, Professor Dr. med. Matthias Nauck. He continues, “That’s really a significant time saving, leading to better and earlier decisions for the benefit of patients. Ultimately it could save lives.”

The first Tempus600® in Germany

Prof. Nauck became aware of the Tempus600® system through an article in a medical magazine. He became interested in the remarkable speed of the system but could not understand that the samples did not require packaging. The sample tubes were simply sent in an ordinary rack.

“I contacted the manufacturer, Timedico A/S. Later I visited two Danish hospitals where Tempus600® had been successfully implemented,” says Prof. Nauck. “Our Tempus600® has been running 4000 samples a month since it was installed, and has proven highly reliable.”

The challenge

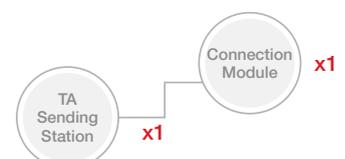
To save time on transportation of blood samples, which was earlier shared by two employees, from the emergency department to the laboratory.

The solution

Installing the Tempus600® system in 2014 – the first of its kind in Germany.

The benefits

- Significant time saved on transportation of blood samples
- Tempus loads directly into a bulk loader
- Tests show a superior quality of the sample compared with earlier procedures for transportation



“ Now our colleagues want to buy their own system – that is absolutely the best feedback you can get from your colleagues. ”

Tiina Lehto, Clinical Biochemist (NordLab)



20 minutes after samples are drawn, analysis results are ready

A new internal transportation system has minimised the Emergency Room (ER) turnaround time for blood samples at Oulu Hospital, Oulu – the second largest hospital in Finland.

Rapid transport of blood samples has helped Oulu University Hospital decrease the patients length of stay in ER. Within minutes of arrival, blood samples are drawn and transported from ER to the laboratory, reducing turnaround time for crucial samples. This results in turnaround times of around 20 minutes from samples being drawn until receiving the results of the analysis.

“The clinicians were so happy about the results of Tempus600®, that they wanted to buy their own system for the ward. This is absolutely the best feedback that you can get from your colleagues.” says Tiina Lehto, Clinical Biochemist, Joint Municipal Service Provider of Northern Finland Laboratory Centre (NordLab).

Smooth progress of transition

When the laboratory management heard about the Tempus600® solution, they went to Denmark to see how Tempus600® works. They were pleased with the efficiency of the system and, in 2016, hospital management decided to invest in the Tempus600® Vita.

“The installation was on time. The supplier promised to install the whole system within 2 weeks and they

completed the installation as promised. Everything went smoothly, there were no delays and we were very happy about the entire process.”, says Tiina Lehto.

The challenge

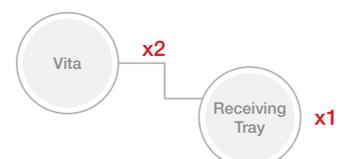
To decrease the patient’s length of stay in Emergency Room.

The solution

Installing Tempus600®, a lightning fast point-to-point line dedicated to the transport of blood samples. This results in turnaround times of around 20 minutes from samples being drawn until results of the analysis are ready.

The benefits

- Reduced turnaround time of around 20 minutes decreases the patient’s length of stay in ER drastically Supports Lean Thinking through better workflow and improved processes and procedures
- Faster and gentler transport than with traditional Pneumatic Tube Systems



“ It is a brilliant system and very easy to install in existing hospitals. It has helped us reduce turnaround time dramatically and we can start patient treatment sooner. ”

Gunn Sjurseike Dale, manager Medical Biochemistry department



A fast and simple solution that saves precious time

“It is a brilliant system and was very easy to install in our existing hospital, connecting the ward to the laboratory by means of a small pipeline” explains Gunn Sjurseike Dale, manager Medical Biochemistry, Stavanger University Hospital in Norway.

“Furthermore, it is a good and simple solution compared to traditional PTS systems because it saves time by not having to pack and unpack the blood samples.”

New working routines

Before, the phlebotomist used to carry the samples to the laboratory having finished their round which normally takes 2 to 2.5 hours. Now they can send the blood samples continuously one by one as the samples go directly to the laboratory and receive analysis results faster.

“Tempus600® fits perfectly with the Lean Thinking that we work with at Stavanger University Hospital and this has helped staff to understand the brilliance in sending the samples immediately to get faster analysis results.”, says Gunn Sjurseike Dale.

Treatment can begin sooner and patients can be released earlier

“By changing the process of blood collection, the total turnaround time has reduced dramatically and the treatment of the patient can begin sooner. Patients can

be treated and sent home earlier.”, Gunn Sjurseike Dale says: “We find that the quality of the samples is better when transported by Tempus600® system, compared to transporting the samples the traditional way.”

The challenge

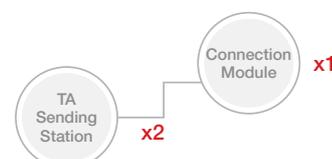
Achieve quicker response time for blood samples in order to improve patient care.

The solution

Installing two Tempus600® centrally in two hospital buildings. In the laboratory the samples land in a SARSTEDT bulk loader which automatically distributes the samples on the track.

The benefits

- Reduced the transportation of samples to the laboratory from 2–2.5 hours to less than one minute meaning treatment of patients can begin sooner
- Evens out production in the laboratory
- Supports Lean Thinking and results in improved workflow
- Easy installation in existing building



“ The transportation time of blood samples has been reduced from 45 minutes to a maximum of 2 minutes. ”



Rapid transport of blood samples reduces response time dramatically

In 2015 Ramathibodi Hospital, a leading public hospital in Thailand, decided to invest in two Tempus600® systems for transporting blood samples. The hospital needed to bring down the total turnaround time (ToTAT) and reduce the amount of inpatient bed days.

This was essential because of the large number of patients being treated in the hospital every day.

Two Tempus600® sending stations were installed in one of the main Health Service buildings sending blood samples from two different levels directly to the laboratory located in the Main Building.

Now every sample takes less than two minutes of transportation instead of 45 minutes previously used by porters.

With the total turnaround time reduced from 85 minutes to 45 minutes because of Tempus600®, the patients receive better treatment and return home earlier.

The challenge

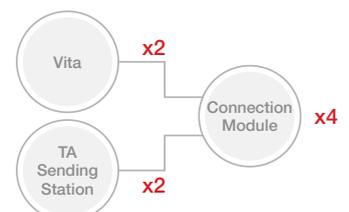
The three main Health Servicing buildings service at least 5000 outpatient visit per day and there is more than 1000 beds for inpatient medical care. The Ramathibodi hospital wanted to bring down the total turnaround time for blood samples and reduce the amount of bed days.

The solution

In 2016 two Tempus600® sending stations were installed at the hospital and following the success of those, two more were installed in 2017.

The benefits

- Sample transportation time is reduced from 45 minutes to a maximum of 2 minutes
- Total turnaround time has been reduced from 85 minutes to 45 minutes, leading to achieving target Lean goals
- Amount of bed days have been reduced



“ The system is fairly intuitive – users need very little training and maintenance is minimal. ”

Colin West, Head of Diagnostics



Swift transportation of samples speeds up turnaround time for urgent test results

When Homerton University Hospital NHS Foundation Trust, based in the London Borough of Hackney, identified problems meeting turnaround times on urgent test requests from Accident and Emergency (A&E), the solution was to install the rapid transport system Tempus600®.

Since the introduction at the hospital, the Tempus600® transport system has had a considerable impact on laboratory turnaround times which, in turn, has had a positive effect in breaches of the four-hour waiting time in A&E due to diagnostic delays within pathology have become almost non-existent.

Quick and easy transmission

Implementing the system into the daily work flow was a simple transition. Staff quickly became used to the system and they made very few mistakes. Therefore, it was possible to continue the normal day-to-day services whilst implementing the new routines.

“The system itself is fairly intuitive – users need very little training and maintenance is minimal” says Colin West, Head of Diagnostics at Homerton University Hospital.

The challenge

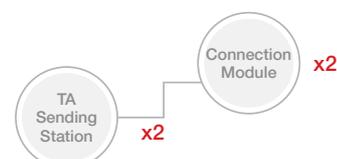
To meet turnaround times on urgent test requests from Accident and Emergency.

The solution

To install the rapid transport system, Tempus600®, dedicated to quick transportation of small clinical samples.

The benefits

- Reduced turnaround time on blood samples
- High quality samples
- A good investment





Cool facts

Countries

21

Hospitals

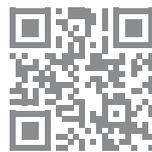
138

Installations

415

TEMPUS600[®]

One-touch for better treatment



See latest updates at tempus600.com

Through Tempus600[®], we help hospitals to commence patient treatment earlier and discharge ambulatory patients more efficiently. Through predictable and faster transportation of small clinical samples, we help to significantly reduce the total turnaround time. The overall outcomes of the Tempus600[®] system are considerable savings in time and resources.

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