

CASE STUDY: Dr. Helge Riegel GmbH Medical Care Center

MORE WAYS TO INCREASE EFFECTIVENESS

The private laboratory of Dr. Helge Riegel GmbH Medical Care Center (Medizinisches Versorgungszentrum Dr. med. Helge Riegel GmbH) is located in Wiesbaden. On the premises are both a joint laboratory practice and a medical specialty laboratory. About four years ago, the laboratory management decided to automate the organization of both laboratory divisions using the laboratory automation system AutoMate 1250, to automate and thereby simplify the structural workflows. The product manager of Beckman Coulter, Thorsten Laubert, spoke with physician Dr. Patrik Zickgraf about his experience with this system.



Dr. Patrik Zickgraf
Director of Laboratory Services
Dr. med. Helge Riegel GmbH
Wiesbaden, Germany

Dr. Zickgraf, could you first give us an overview of your two laboratory divisions?

Like most private medical laboratories in Germany, our laboratory includes two separate laboratory divisions: the medical specialty laboratory and the joint laboratory practice. The joint laboratory practice currently employs 20 people, including 15 medical technology assistants (MTAs). The medical specialty division employs about 140 employees (100 in the laboratory), including the medical staff. This is a result of the fact that the medical specialty laboratory offers the entire spectrum of laboratory medicine and the record keeping is more complicated. Therefore, the organizational cost is much higher.

How many clients do you serve, and where?

Our laboratories currently serve about 1,100 private practice physicians in the Dr. Helge Riegel GmbH Medical Care Center, which encompasses an area that roughly includes the regions of Rhein-Main, Westerwald and Odenwald.

About how many samples do you receive each day?

We process up to 6,000 tubes per day in Wiesbaden, which equates to about 6 million tests a year.

How were the two laboratory areas organized before the introduction of the AutoMate 1250 systems?

The trigger for automation was the implementation of a new laboratory computer system in 1998. This caused very rapid changes to our existing processes, such as the introduction of bar code labeling. A special service of our laboratory was and is also the archiving of sample tubes for four weeks. Previously, the procedure was recorded in a first step, and then initial distribution according to departments was done in a second step. This involved manual aliquotting and labeling, and only then a specific distribution to the actual workstations and devices. The entire division was no longer optimally organized for sample flow, the use of specimen and archiving. Tracking was also difficult. Thus, the idea to automate this area arose.

What particular difficulties were encountered in this process?

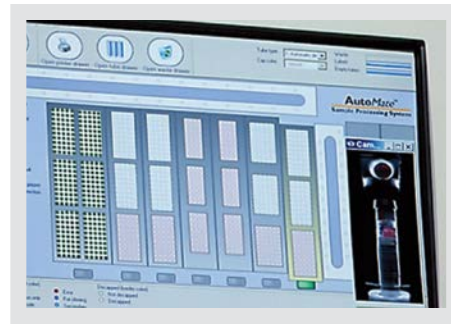
Since the distribution of samples in the medical specialty division is very complex, many problems were encountered. Some examples include:

- › There was a risk of sample mix-up
- › There was a high rate of specimen consumption with aliquotting because too much serum was usually filled for the individual tests
- › Stress and anxiety associated with sample receiving and distribution
- › The sample flow was not optimal because there were too many distribution workstations

What were the reasons for opting for the AutoMate 1250?

At that time, the AutoMate 1250 was the only system that could fulfill all the requirements we needed, and this is still true. It seemed clear and practical to us. The main issues for us were:

- › Automatic archiving, since we archive samples for four weeks
- › Optimization of sample flow, including the distribution workstations
- › Reduction of the consumption of sample volume
- › De-stressing of the distribution process, stopping “MTA tourism” within the laboratory
- › Sample traceability
- › Prevention of sample mix-up



What are your laboratory processes like today?

We achieved a very clear and transparent workflow through automation. After centrifugation in the joint laboratory practice, all serum samples go first through the two Beckman Coulter AU5400s since at least 95% of the serum samples involve requests for clinical chemistry. Then they go into the AutoMate systems and are immediately archived, or if there are other requests, such as immunology, electrophoresis, repeaters or follow-up requests, they are distributed to the corresponding workstations. In the medical specialty area, each serum sample first goes on the AutoMate 1250. Because of the mix of serum tubes from the automated testing systems together with the medical specialty samples, which still frequently have to be aliquoted, we achieve optimum utilization of the two AutoMate 1250s and are also well prepared for peak periods. The process of distribution is transparent to the employee. In the medical specialty area, the record keeping is more complex. Here, specimens are recorded with labeling of the sample, and then recording of the patient information and test results. Once completed, the sample goes into the AutoMate 1250.

You started first with one AutoMate 1250. Which laboratory division was automated first, and why this division?

We started first in 2001 with an AutoMate 1250 in the joint laboratory practice since automation of archiving was very time consuming because of our special services (archiving of samples for four weeks), and therefore, needed to be automated first. In 2003, we got our second AutoMate 1250, and from that moment, the entire medical specialty division was taken care of by the two AutoMate 1250s. Since both systems originated with StreamLine, which Beckman Coulter took over in 2001, and were still series 1 systems, they were exchanged for two AutoMate 1250s of the latest version at the end of 2004.

How did the installation of the *AutoMate* 1250 go for you at your location?

Because of our previous experience with the first *AutoMate* series from StreamLine, we were well prepared on the laboratory side, in terms of connecting the *AutoMate* system to the laboratory computer system. The two systems were installed over the weekend quickly and professionally by the Beckman Coulter service team. The goal was to have one of the two systems operating routinely on Monday. In fact, both were ready to start working.

How did your employees initially accept the *AutoMate* 1250 and how do they accept it now?

The two *AutoMate* systems are fully accepted in the laboratory. These systems enable the workflow of distribution and archiving to run continuously and smoothly. For our employees, the samples almost seem to take care of themselves. One employee takes care of both devices. The acceptance is also very high because the reliability and robustness of the *AutoMate* 1250 systems is extremely high, and any errors arising during a very rare system failure can usually be eliminated by our experienced staff. The expert service team from Beckman Coulter should also be praised. In the event of a system failure, they are sometimes able to have the system operating again on the same business day.

What is your conclusion regarding Beckman Coulter's service in relation to the *AutoMate* 1250?

The service is now as good as we are accustomed to for the clinical chemistry analyzers of the AU series.

Are you using any other systems from Beckman Coulter?

In the joint laboratory practice, we have two AU5400 analyzers for clinical chemistry, and a Hite630 which processes electrophoresis requests.

After the introduction of the two *AutoMate* 1250 systems, what workflow benefits resulted?

- › Fast location of samples by the automatic archiving
- › A more relaxed working process for distribution
- › Prevention of sample mix-up and security through the automated aliquotting of sample tubes
- › Significant reduction in serum consumption via automatic aliquotting; only the actual amount required for analysis is taken
- › Traceability of the individual samples is always guaranteed because we can document and trace the exact path of the sample from receipt to archiving
- › Greatly reduced reminder lists
- › Increased effectiveness
- › Reduction of distribution workstations
- › Reduction of sample processing times in the laboratory through concurrent distribution, processing and archiving processes. We archive on the same workday.
- › Backup by identical workstation assignment of the two *AutoMate* systems (i.e., both systems can process both the medical specialty and joint laboratory practice divisions)

Did the *AutoMate* 1250 have any economic impact on your lab?

The two *AutoMates* enabled us to eliminate four full-time positions in the medical specialty division and at least one in the joint laboratory practice. The freed up capacity of our employees could then be utilized in a more useful way, as described above. We increased the capacity of our laboratory without generating any additional costs. Thanks to the *AutoMates*, we were able to save work hours which we could then use to ensure an even higher quality of our testing.

Is your laboratory certified or accredited, as a number of laboratories both in public and private hands are currently seeking?

Yes, we have been DIN ISO 15189 certified since 2004, both in the medical specialty and joint laboratory practice divisions. On a side note: Certification and accreditation were greatly facilitated and supported by the *AutoMate* 1250 and the associated automation of many manual processes. The legally required full documentation is automatically performed by the two *AutoMate* 1250 systems.



Is the throughput of the two *AutoMate* 1250 systems sufficient?

For our sample volume in clinical chemistry, with the two Beckman Coulter AU5420 systems, we have more than enough capacity for the medical specialty laboratory and the joint laboratory practice. This is especially true as the coagulation and hematology are not distributed through the *AutoMate* systems; these two tube types are clearly identifiable and can therefore be separated beforehand.



Can you draw a personal conclusion?

Fast facts: A successful system, professional conversion and more relaxed working environment has become possible.

Would you recommend the *AutoMate* 1250?

Yes, the current 3rd generation. It is much more robust, and the service is as good as we are accustomed to from the Beckman Coulter AU systems; therefore, in the meantime, we have put a third *AutoMate* system into operation.

How would you advise other laboratories that want to implement laboratory automation in the future?

Lastly and basically: The implementation of laboratory automation takes time! Such an introduction does not function incidentally—a clear definition of goals in the laboratory is essential. What do I want to achieve? Where do I want to go? The concept must not come only from outside, but must also be discussed with the affected employees beforehand. This is elementary, since the employees are taken along on this path and can see for themselves the benefits of laboratory automation. In this way they lose the fear of losing their jobs.

Every employee must understand the undeniable benefits of automation in contrast to potentially error-prone manual processes. The whole process of introducing laboratory automation must be designed absolutely transparently. We now have five years of experience in laboratory automation. This transparency and recognition of the benefits by laboratory employees comes along with the automation. We were able to optimize our workflow even more over time. Above all, the “path of the sample tube” must be clear to all employees—only in this way will automation in the laboratory be properly experienced.

Dr. Zickgraf, thank you for the interview.

This discussion took place in September 2006 and was updated in June 2010 with Dr. Zickgraf.

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CS-15960B B2014-15045
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