Sustainable Change

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By switching to diagnostic systems from Siemens, Portugal's Dr. Joaquim Chaves reference laboratory became more productive – and thus more competitive. The fact that the facility now uses less water, saves on material costs, and generates less waste enables it to sustainably contribute to environmental protection as well.

By Manuel Meyer

The Laboratório Dr. Joaquim Chaves, one of three pillars of the Joaquim Chaves Group, which also includes Imaging and Oncology Centers, is one of the leading private laboratories operating in Portugal. With its high levels of specialization, superior-quality work, and size, the facility, located in Miraflores on the outskirts of Lisbon, is also considered a reference laboratory for the region. Its service spectrum of nearly 5,000 different tests across a full range of laboratory analyses includes microbiology, immune diagnostics, molecular diagnostics, genetic diagnostics, clinical chemistry, hematology, and urine chemistry. The laboratory also works in the fields of veterinary and environmental testing, such as the monitoring of water safety and quality.

The company, which has a tradition stretching back 51 years, has 100 staff members and serves more than 3,000 patients each day, processing over 5,000 samples. And yet, even here, at the largest private laboratory in Portugal, change was imminent, and the facility was forced to reinvent itself in order to remain successful amid the stiff competition in the laboratory analysis market. With this goal, the company embarked on a close cooperation with Siemens Healthcare Diagnostics in 2007, the leading diagnostic company in Portugal.

The laboratory testing market in Portugal has undergone tremendous changes over the past six years, explains Carlos Cardoso, Pharmacist, Technical Responsible at the Laboratório Dr. Joaquim Chaves. Many smaller companies were forced to shut down due to the economic crisis, and others were taken over by larger enterprises. “Where there were 400 labs in Portugal six years ago, the figure has fallen by half today,” Cardoso says.

In addition to the consolidation that has taken place in the market, Cardoso continues, the Portuguese market has also increasingly opened up to major international conglomerates. “That meant that we were forced to become even more competitive, because even the small labs got faster and more competitive as a result of their integration into large groups,” says Cardoso, who has worked for the company for 20 years, the last ten of them as its Technical Responsible.

Changed Market Situation Leads to Restructuring

The onset of the economic crisis three years ago put the laboratory under even more pressure. The Portuguese government’s state-run hospitals and laboratories are indirectly the laboratory operator’s most important major client, representing 60 percent of its business. When state budgets were strained several years ago, the Portuguese government was forced to institute belt-tightening measures. In response, the public hospitals increasingly opened in-house laboratories to drive down the costs of working with external laboratories. Also, the prices paid for laboratory analyses, which had risen annually, stagnated, though laboratory cost continued to rise.

“These changes forced us to restructure. We needed to achieve faster analysis times without affecting quality. At the same time, though, we had to make sure we did not lose profitability, which meant that we had to cut our laboratory costs,” Cardoso says. As a result, he explains, the company turned to Siemens. “With Siemens, we not only had the sense that we were purchasing advanced analytical equipment, but also that we were finding global solutions for modernizing the company at various levels,” he clarifies.

"This substantial reduction in water use and waste generation has let us grow even amid the crisis, while keeping our prices level."

Carlos Cardoso, Pharmacist, Technical Responsible, Laboratório Dr. Joaquim Chaves, Lisbon, Portugal

With just under 200 square meters (approximately 2,153 square feet), part of a total area of 1,200 square meters (13,000 square feet) of the laboratory, a goal was to consolidate multiple disciplines, including hematology, in a space-saving configuration. The physical versatility of the Siemens' analytical units, which take up less space than those from other manufacturers, played a major role in the laboratory's decision to choose Siemens. In December 2007, the laboratory installed the ADVIA® LabCell® Automation System with three ADVIA Centaur® Immunoassay Systems, one IMMULITE® 2000 Immunoassay System, two ADVIA 2400 Chemistry Systems, three ADVIA 2120 Hematology Systems, and two Clinitek Atlas® Automated Urine Chemistry Analyzers. One Viva-E® Drug Testing System and two BCS® XP Hemostasis Systems from Siemens were also installed.

More Productive, Faster, More Competitive

Since the installation of ADVIA LabCell, there have not been any technical difficulties or maintenance problems. It also did not take long to see the impact. Before the restructuring, the laboratory took an average of five days to provide results. "Now, we manage it in less than two days. We have been able to cut the delivery period by 59 percent," says Cardoso. In particular, times for routine activities such as loading patient samples have been reduced by nearly 80 percent with the new throughput system. A number of manual work steps have been completely eliminated. The automation of the laboratory has also meant that the lab's previous 18 workstations have been reduced to seven, which frees up space and cuts back on maintenance, allowing staff to concentrate on more important work. Laboratory employees now have considerably more time to manage quality control and to better serve customers and patients.

"With Siemens, we have become more productive, faster, and more competitive," Cardoso acknowledges. The laboratory's customers and patients are also pleased with the results brought by the switch to Siemens. The delivery period for samples was cut, and the percentage of laboratory analyses not delivered on time was slashed from 4.9 percent in 2007 to just 0.05 percent today, a drop of 98 percent.

The digitalization of results has also significantly shortened the time needed to send test results to the customer. Paperwork, sending of hard-copy results, and labeling of samples are no longer needed, and not just within the lab itself. Its customers are also equipped with a computer program that lets the lab send all results quickly and electronically with a digital signature. This offers advantages in terms of efficiency and helps conserve natural resources by using less paper.

Expansion and Patient Benefits

The overall result: In spite of the economic crisis, the lab has gained ten percent more new private direct customers annually since 2007. In addition, the reduced time needed, lower lab costs, and price decreases that have been achieved have meant that the lab has been able to place the winning bids for a number of government contracts. The resulting growth has even enabled the company to take over a number of smaller labs in recent years and invest in its own radiation therapy units in the cities of Porto, Faro, and Funchal. In total, the group now operates seven different laboratories and practices, including two private clinics in Lisbon.

The switch to Siemens' systems has also brought benefits for patients. While eight minutes was the average time needed to take a patient sample back in 2007, the process now takes just under four minutes. All in all, the time needed to take samples has been reduced by 56 percent, primarily due to the fact that with the automation of the system, the facility has been able to cut the number of blood tubes collected from two to just one per patient. That also means that each patient is only required to give half of the previous amount necessary for a blood sample.

Lower Material Costs, Less Water Use, Less Waste

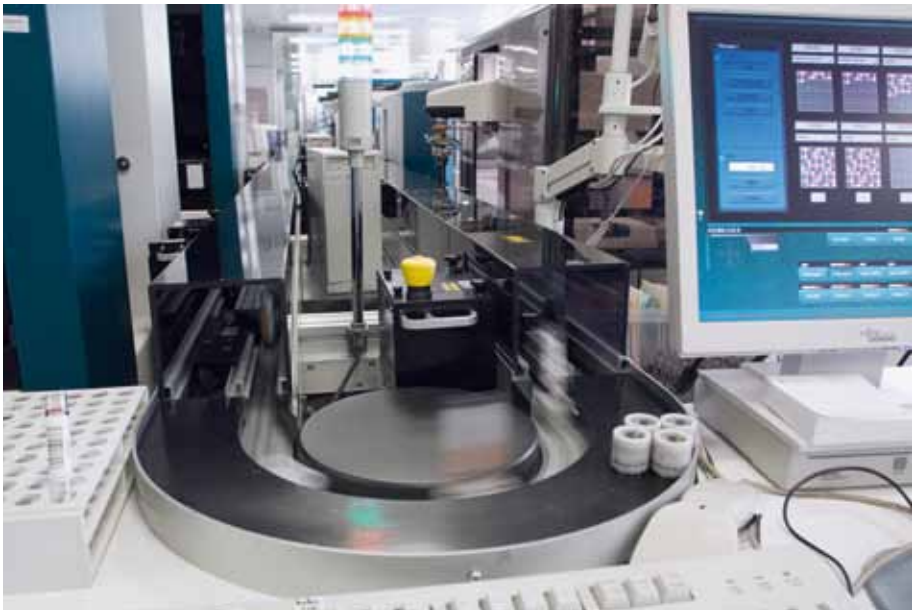
The fact that the number of blood tubes collected from each patient has been cut by half has an additional effect – one that is extremely important from both a financial and an environmental standpoint: lower material costs, decreased water use, and less waste. "As a result, we have been able to reduce lab costs by 30 percent, a considerable margin," Cardoso says with some pride. The new system means that laboratory operations generate 30 tons less material waste each year. Nearly a million sample tubes can be saved in a single year. The laboratory

has been able to cut its solid waste volume by 61 percent and its liquid waste by an impressive 74 percent. Its in-house water production and consumption have also been cut back by 40 percent due to the reduction in the quantity of blood tubes needed from each patient and due to the Siemens system. "This substantial reduction in water use and waste generation has let us grow even amid the crisis, while keeping our prices level," Cardoso points out, emphasizing the importance of these metrics.

With such impressive results, the Laboratório Dr. Joaquim Chaves plans to continue working alongside Siemens in the future. The facility has plans to expand the hematology, coagulation, and analysis systems, along with plans to expand its microbiology departments and to add a real-time PCR system for molecular biology diagnostics. Additionally, the company plans to support Quadrantes Clinic in Lisbon, utilizing Siemens' clinical imaging (in vivo diagnostics) and information technology systems.

Increased productivity and growth while sustainably contributing to environmental protection is a reality at the Laboratório Dr. Joaquim Chaves.

***Manuel Meyer** is a correspondent for the Austria Press Agency in Spain and Portugal.*



Laboratory automation systems from Siemens have allowed the reference lab to operate faster and be more productive, while saving costs.

Summary

Challenge:

- Market consolidation and the economic crisis demand greater competitiveness
- Increasing waste water and solid waste disposal costs
- Increased awareness of environmental issues

Solution:

- With Siemens ADVIA LabCell Automation Solution and instrumentation, the lab was able to reduce analysis periods without affecting quality
- Workflows were streamlined and lab costs reduced
- Higher profitability and increased competitiveness through reduction of material costs and waste quantities while also achieving a positive impact on natural resources and the environment

Result:

- Reduction in time to deliver results by 59 percent
- Reduction of 50 percent in volume of blood samples collected from each patient
- Laboratory costs reduced by 30 percent
- Solid waste quantity reduced by 61 percent; liquid waste reduced by 74 percent; water consumption down 40 percent

Further Information

www.siemens.com/diagnostics-automation

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