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San Bortolo Hospital Boosts Productivity with Apto Automation and CentraLink Data Management System

Answers for life.



“Aptio Automation and CentraLink provide standardization, which helps drive quality. When patients receive timely results that are consistent and reliable, their safety and care are optimized.”

Dr. Davide Giavarina
Vicenza Laboratory Director

Laboratory in Vicenza, Italy reduces TAT, streamlines management, and boosts productivity with Aptio Automation

Reduce turnaround time (TAT), increase automatic control and management, and raise staff productivity. These key goals led Italy's San Bortolo Hospital's core laboratory in Vicenza to implement Aptio™ Automation from Siemens Healthcare Diagnostics. “We had to change, become quicker, more productive, less expensive—and better use the improved competencies of our staff,” says Dr. Davide Giavarina, laboratory director.

The San Bortolo core laboratory is part of the Department of Clinical Pathology (Dipartimento di Patologia Clinica) at the Azienda Sanitaria ULSS 6 Vicenza (“Vicenza”). The laboratory serves two public and three private hospitals, a prison, a drug-treatment facility, area nursing homes, and a U.S. military base. Facing increasing demand coupled with space and budget constraints, Vicenza leveraged Siemens automation to increase efficiency and support excellent patient care.

Automation journey leads to Aptio Automation

Until the 1990s, Vicenza operated on a compartmentalized laboratory model, running separate chemistry, hematology, microbiology, and serology laboratories. However, that model had grown problematic. Up until 2000, the test volume was increasing 5% per year, but it no longer was financially possible to add more staff. At the same time, laboratory personnel possessed higher educational qualifications as required by law, making it essential to leverage their capabilities more effectively. Vicenza evaluated its existing processes, identified improvement opportunities, and turned to Siemens Healthcare Diagnostics. The ADVIA® LabCell® Automation Solution enabled Vicenza to change its core laboratory in 2001, integrating chemistry with immunochemistry and eliminating the need for a separate STAT laboratory. Recently, Vicenza progressed to Aptio

Automation with five Dimension Vista® 1500 Intelligent Lab Systems and one ADVIA Centaur® XP Immunoassay System, further improving TAT, efficiency, and quality. Aptio Automation is Siemens' next-generation track-based automation platform that unifies connectivity of multidisciplinary systems.

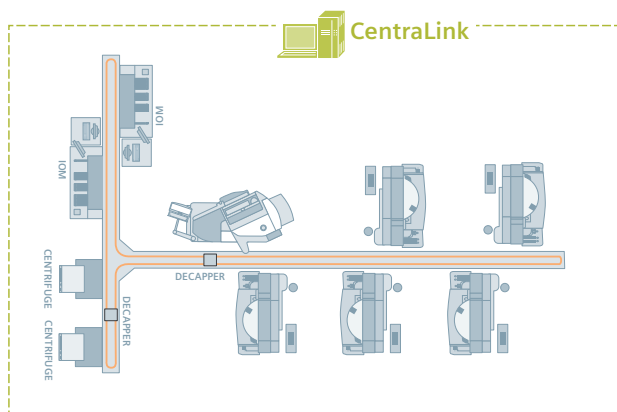
Meeting TAT, efficiency, and quality goals

With standardization of analytical procedures, Vicenza is able to control the process, results, quality, and systems—collectively and in the context of a single sample per patient. The laboratory is tracking key metrics to gauge the impact of automation. Fifteen years ago, the laboratory ran 3.5 million tests per year; now that number is 4.5 million, i.e. an increase in test volume of almost 30%. Productivity gains achieved through ADVIA LabCell Automation are further magnified with Aptio Automation. Today, during a typical morning, Vicenza performs approximately 15,000 tests on 1200 tubes. The Dimension Vista 1500 Systems on Aptio Automation have reduced TAT for troponin tests from 19 minutes to just 10 minutes. The sample is transferred through point-in-space aspiration. Sample traceability during each analytical phase reduces error. “Regarding quality, the most important point for me is that automation standardizes procedures,” Dr. Giavarina says.

Despite the steady annual growth in test volume, the laboratory was able to redeploy five full-time employees and close the STAT laboratory after implementing the ADVIA LabCell Automation Solution in 2001. Now, Aptio Automation permits the redeployment of an additional full-time employee.



Aptio Automation in San Bartolo Hospital's core laboratory



Vicenza solutions

- CentraLink Data Management System
- Aptio Automation Solution with:
 - Five Dimension Vista 1500 Intelligent Lab Systems
 - One ADVIA Centaur XP Immunoassay System
 - Input/Output (IOM)
 - Decapping Module (DM)
 - Centrifugation Module (CM)

CentraLink Data Management System eases transition

For Vicenza to migrate to Aptio Automation, the laboratory had to implement the new solution in the same space as the old one, without downtime. “We were working at a construction site,” Dr. Giavarina says.

Several factors eased Vicenza’s transition to Aptio Automation. The most significant was Aptio Automation’s full integration with the CentraLink™ Data Management System. “The complete compatibility between the CentraLink System and Aptio Automation was the key to success,” Dr. Giavarina says. “It was a great help to be able to maintain the same middleware—the same logical processes, the same procedures, the same quality control. Personnel were able to work within a familiar environment, even as Aptio Automation further reduced TAT.”

The CentraLink System is an IT solution for centrally managing laboratory data and instruments and automating workflow. The software connects information systems, laboratory instruments, and PC workstations via a single link; it also prioritizes workflows so results for critical patients are verified first.

“It not only handles the automation, but also the entire pre-analytical, analytical, and post-analytical processes, such as specimen management, autoverification, quality control, and technician alerts,” Dr. Giavarina says. “The software is robust and user-friendly. The operator can evaluate and validate results, review data about the test, test reruns, patient information, quality controls, instrument alarms, and more—with most of the information consolidated onto a single page.”

Siemens systems and Customer Care accelerate productivity

Also supporting the transition to Aptio Automation was Vicenza’s choice of the Dimension Vista 1500 Intelligent Lab

System. The Dimension Vista System integrates technologies to allow simultaneous test processing for multiple disease states from a single tube, enabling Vicenza to run 95% of its typical test mix on this single platform.

Siemens Customer Care services also played a crucial role in Vicenza’s transition. Siemens Healthcare Consulting (HCS) assisted with workflow expertise to help optimize laboratory processes and instrumentation. Twenty Vicenza technicians received three days of training each at Siemens’ Italian headquarters in Milan. The same staff participated in online training through the Siemens Personalized Education Plan (PEP). “All of that helped us achieve rapid and complete staff competency,” Dr. Giavarina says.

Flexibility and scalability for future demand

Test volumes currently stand at 4.5 million annually. But that might soon change as Italian health systems undergo reorganization and the Vicenza laboratory is asked to receive more samples from additional sites. Aptio Automation gives Vicenza the ability to scale to meet increasing demand. It also provides flexibility to adapt the mix of tests, which changes constantly, i.e. recently, the laboratory added five additional test methods. Vicenza is considering adding a second Aptio Automation track to automate other areas of the laboratory, such as allergology, esoteric testing, and autoimmunity.

Looking back, Dr. Giavarina notes that the evolution of the Vicenza laboratory over the last 15 years exemplifies the complete history of laboratory automation in Europe. “The new frontiers now are integration and consolidation,” he says. “Aptio Automation represents a significant advance on this journey.”

Vicenza at a glance

Number of tests per year: 4.5 million; 29% increase in volume over the last 15 years

Number of hospital beds: 1,152

Number of employees: 59 full-time; 23 part-time

Number of patients per year: 182,000 inpatients; 306,000 outpatients

Core laboratory at San Bortolo Hospital: Chemistry and immunochemistry (cardiac markers, oncologic markers, thyroid, fertility, anemia). Hematology tests, hemostasis and thrombosis diagnostics; and point-of-care testing network (20 hemo-gas analyzers, 90 blood glucose monitors). Special activities and esoteric tests on a separate floor. Satellite laboratory at Noventa hospital

TAT: Standardized within 60 minutes for both routine and STAT

Troponin test TAT reduced from 19 minutes to 10 minutes with migration to Aptio Automation and the Dimension Vista Systems

Redeployed five full-time employees with LabCell Automation, and one additional employee with introduction of Aptio Automation Solution

Laboratory runs 24 hours daily



CentraLink Data Management System

Siemens Healthcare Diagnostics, a global leader in clinical diagnostics, provides healthcare professionals in hospital, reference, and physician office laboratories and point-of-care settings with the vital information required to accurately diagnose, treat, and monitor patients. Our innovative portfolio of performance-driven solutions and personalized customer care combine to streamline workflow, enhance operational efficiency, and support improved patient outcomes.

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Note: The outcomes achieved by the Siemens customer(s) described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that others will achieve the same results.

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