

“Automation without diagnostics IT is not a complete tool. We absolutely need information technology to capture the productivity and workflow improvements that automation can offer.”

Dr. Giuliano Soffiati
Chief of Laboratory, ULSS 6 Vicenza

Year-round, 24 hours a day, seven days a week, the Department of Clinical Pathology (Dipartimento di Patologia Clinica) at the Azienda Sanitaria ULSS 6 Vicenza (“Vicenza”) meets the inpatient, outpatient, long-term care, and public health needs of a population of almost 300,000 across a 737-square-kilometer area near Venice, Italy. The core lab is located at the San Bortolo Hospital. There is a satellite lab at Noventa Hospital 35 kilometers away, as well as 14 point-of-care testing stations and eight specimen collection centers throughout a sprawling network of daycare services, long-term care facilities and a blood bank. In addition to the two hospitals with a total of 1,092 beds, Vicenza serves a prison, a drug treatment facility, nursing home, and a

US military base, as well as provides reference lab services to other hospitals, the ULSS 4 and ULSS 3. A total of 5 million tests were performed at Vicenza in 2008, up from about 3.5 million in 1999, when Vicenza acquired the TD-Synergy® Laboratory Information System (LIS) and began a systematic effort to expand its IT infrastructure. Over the next decade, under the direction of Dr. Giuliano Soffiati, chief of laboratory, Vicenza built an information network that leverages state-of-the-art diagnostics IT and the Internet to connect the diverse care facilities, streamline the process of test requisitioning and results reporting, elevate the quality of test results, and improve the accuracy of data transmission throughout the process.

Streamlining Laboratory Workflow for Vicenza’s Complex Network

Winning with Diagnostics IT

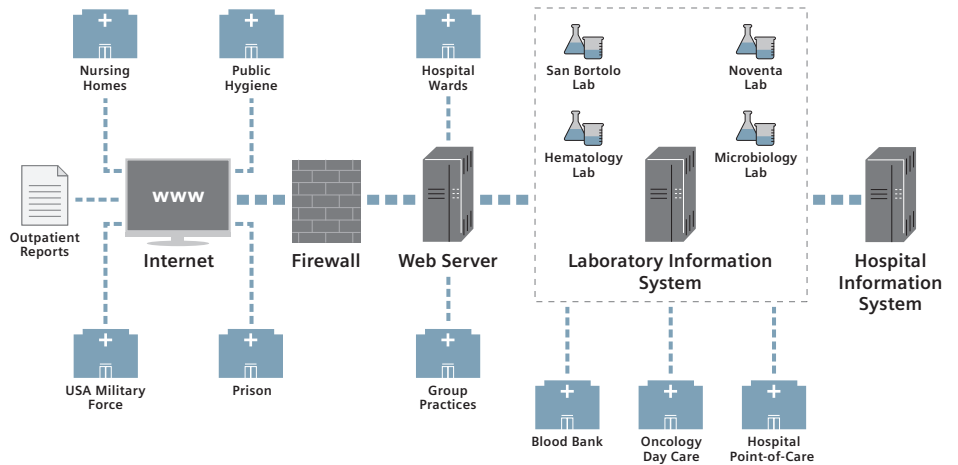
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A Vision for the Future

In many ways, Vicenza is a showcase in diagnostics IT deployment—a successful integration of automation, data management, as well as the LIS. According to Dr. Soffiati, this is driven in part by the need to integrate the diverse needs of inpatient and outpatient testing. The bidirectional interface handles all test requests and results reporting. It eliminates many manual steps, ensuring expediency and accuracy of transmission of information between the lab and the numerous originators of testing requests, from hospital wards to clinics and other points of care, to blood bank and public health venues. This also means better service to the patient because repeat visits to the clinic for test results are not necessary.

Within the lab, middleware is a crucial component in data management and quality control. The ADVIA Centralink® Data Management System manages chemistry and immunodiagnostics test data flows from the ADVIA® LabCell® Automation Solution, while other middleware solutions handle hematology, microbiology and other tests. The RAPIDComm® Data Management System



Vicenza overview

interfaces with the blood gas analyzers at the point of care, along with other middleware solutions for other point-of-care testing such as blood glucose. A key benefit of diagnostics IT deployment is the drastic reduction of test results requiring technologist review. Today, a full 90 percent of test results are automatically validated and sent on to the LIS.

Regulatory compliance is also streamlined, since documentation and archiving are handled by the LIS. Vicenza relies on diagnostics IT to handle the myriad documentation required to support accreditation by and compliance with standards set by the College of American Pathologists (CAP), the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) and ISO 15189. Vicenza is currently the only lab in Italy that participates in CAP surveys.

Staff efficiency and morale

Despite the continuing increase in testing volume, lab personnel at Vicenza decreased over the past five years, even though staff reduction was not necessarily a goal of the organization. This was achieved in part by consolidating four labs handling clinical chemistry, immunodiagnostics, hematology, microbiology, and virology, into one.

With increasing levels of automation powered by IT, the lab was able to reduce staff as personnel retired. Importantly, the staff is able to take their work to a higher level.

Recommendations for other labs

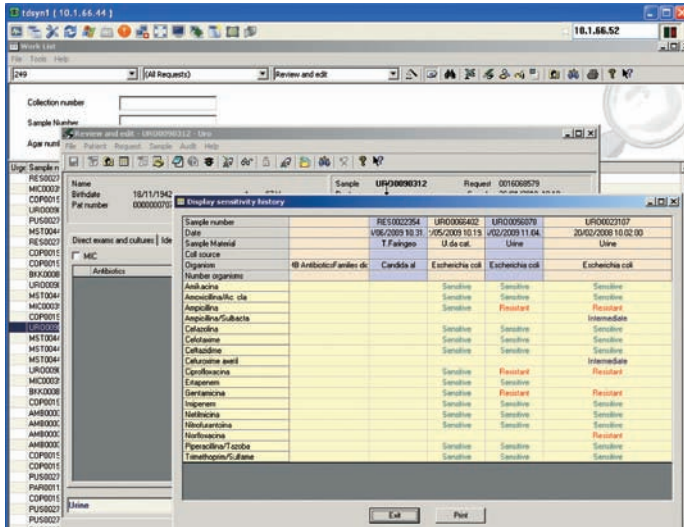
For labs that are planning to implement a new diagnostics IT solution, Dr. Soffiati suggests that the first step is to take a look at the process of the organization—the workflow, the expertise, the current infrastructure—and determine and prioritize the problems that diagnostics IT can help solve. A second step is to choose a company to work with, and Dr. Soffiati believes that a company that has both IT and diagnostics expertise could be important. The resources and commitment to provide 24/7 support is also critical. The experience of people within that company is a key consideration. A team that will spend the time to understand how the lab works is more able to provide expertise and help the lab through the planning and implementation.

The “perfect” world in diagnostics IT

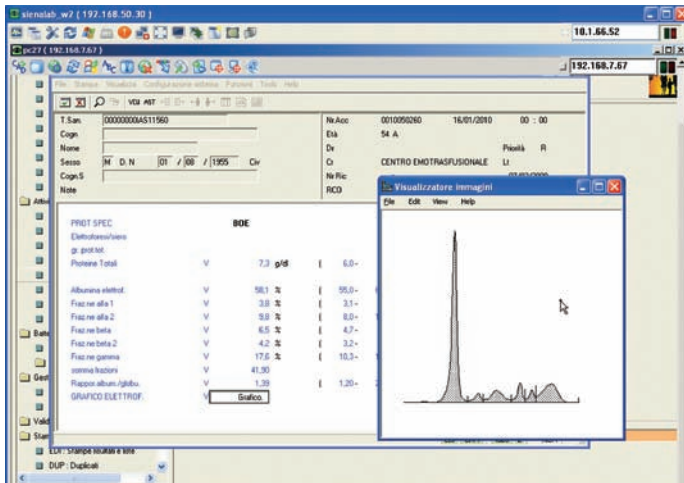
Imagine a world where patient information is captured in the diagnostics IT system the moment the test is ordered and the sample is collected. Prompts from the system guide the phlebotomist or

“In our laboratory today, the ambiance is very good. The lab is different from the past in many ways. Before, the staff needed to work with their hands. Today they work with their mind. And they have developed new skills in relation to management of complex situations.”

Dr. Giuliano Soffiati,
Chief of Laboratory, ULSS 6 Vicenza



Review and edit: Sensitivity history



Data visualization



“I think it’s very important to choose a very big company...Every moment of the day if you have a problem with LIS we need support from the company. For example, in our lab we have our support from Siemens on Saturday and also on Sunday.”

“We hope in the future we have only one middleware solution for all instrumentation in the lab. In fact, I hope in the future we have the middleware and the LIS in one.”

Dr. Giuliano Soffiati
Chief of Laboratory, ULSS 6 Vicenza

nurse collecting the specimen on which tube to use and other requirements for sample collection. In the lab, technologists are provided with pertinent updates on all aspects of lab operations—from reagent levels to analyzer calibration to system status—that may require proactive intervention. The LIS is fully integrated with the hospital information system so that up-to-date information about the patient’s clinical status is available to the lab, putting analytical results in proper perspective during the review process and further facilitating the teamwork between the laboratory and the clinician, and perhaps even the pharmacy.

In Dr. Soffiati’s vision of the future, the numerous middleware solutions of today no longer exist. He believes that these multiple solutions not only add to implementation and training time up front, but also make the addition of new analytes or new rules more complex than it needs to be. Taking this one step further, he boldly predicts the obsolescence of middleware as a stand-alone category.

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