SIEMENS

Case Study

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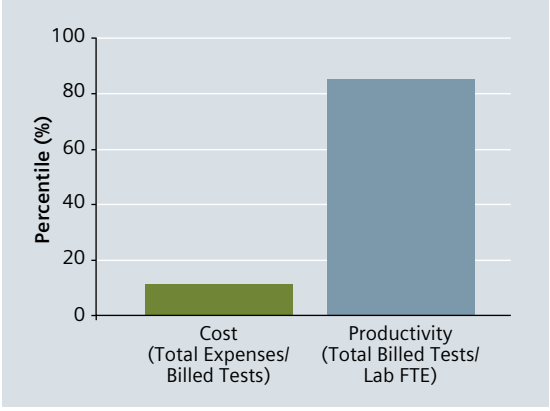
Achieving Quality Care, Cost-Efficiency, and Staff Satisfaction at Swedish Covenant Hospital

Winning with Diagnostics IT

"At the ICU, we are highly dependent on the lab for patient results and typically we need everything STAT. For example, we asked to be the first blood draw at 5 a.m. and we expect our results back by 7 a.m. at the very latest. I have never had a complaint...based on my experience, working closely with the lab and making sure the lab knows how its work impacts patient care directly is very important."

Eric Gluck, MD
Medical Director of the ICU

Chart 1. Solucient KPI Snapshot*



For the first quarter of 2009, Solucient ranked SCH in the top 15% for productivity, as measured by total billed tests per lab FTE, and the bottom 12% for total expenses per 100 billed tests.

Once a quarter, Susan Dawson, clinical lab Manager at Swedish Covenant Hospital (SCH) in Chicago, receives a report card from Solucient®, a part of Thomson Healthcare, in the form of a key performance indicator (KPI) snapshot comparing SCH's lab operations against those of 28 hospital labs in the U.S. The consistently favorable rankings over the past two years no doubt keep the hospital administration happy, but even more important is the quality of patient care that the lab is helping to deliver. Back at the lab, Dawson describes a calm, stress-free environment that is conducive to getting work done quickly, efficiently, and at high quality. How does the lab achieve this balance?

Streamlining Workflow Through Integration

"It goes without saying that the ADVIA WorkCell automation line streamlines everything—be it people, instruments, or space requirements—since specimen handling is consolidated in one single area, and you touch the specimen once and you're done! But the true benefit is in the back end where results review takes place. This is where the CentraLink has the most impact, by making more efficient use of your technologist staff."

Susan Dawson,
Clinical Lab Manager

Chart 2. ADVIA WorkCell Solution

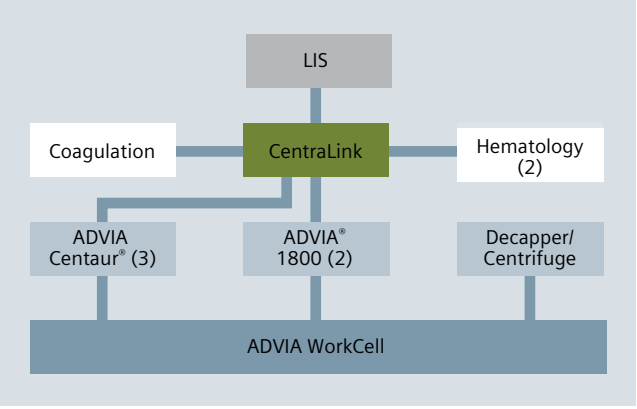
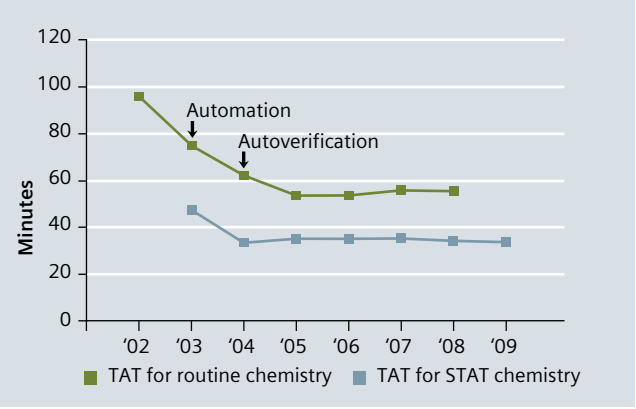


Chart 3. Lab TAT Trends



Dawson attributes this to a combination of the way the lab deploys human resources and how it leverages state-of-the-art informatics and automation technology. A well-thought-out division of labor focuses the technologists on analytical tasks while the para-technical staff handles pre- and postanalytical work.

Just as important is the involvement of the entire staff in designing an optimal work environment that integrates autoverification and QC controls of chemistry, hematology, immunology, and coagulation tests using the CentraLink™ Data Management System, while specimen handling is automated using the ADVIA WorkCell® Automation Solution. The result is an efficient, effective operation that handles 1.1 million tests per year to support the 550 physicians at the hospital and another 110 community physicians.

Critical to the lab's operation at SCH are an automation line that tracks and handles specimen tubes, and a middleware workstation that provides comprehensive data management capabilities and serves as the single interface between the analyzers and the LIS. With the ADVIA WorkCell automation line, which has been in operation since 2002, 99% of specimen tubes coming into the Chemistry section are touched only once. CentraLink, also in operation since 2002, manages three immunoassay analyzers, two chemistry analyzers, two hematology analyzers and a coagulation analyzer.

The Efficiency of a Single Consolidated Workstation

With the CentraLink workstation, one technologist can access all the analyzers, review data, and make decisions such as specimen and result disposition (prior to LIS filing) from one computer. This replaces multiple technologists performing the same functions at individual analyzers.

Saving Time, and Elevating Quality, with Powerful, Customizable Autoverification Functionality

Patient results are reviewed by CentraLink software, based on predetermined criteria established by the lab, so that the technologist only needs to review those results that require further action before reporting. This adds objectivity and consistency to the results review process, alleviates the burden on technologists not to miss abnormal results, and focuses the technologist's attention where it is needed most. The amount of technologist training is also reduced.

*System throughput, required staffing, and resulting productivity may vary.

Taking Quality to the Next Level

"There are lots of autoverification systems out there, but QC is not always part of middleware and therefore is done manually. At our lab, QC is an integral part of middleware. If the last QC result is out of range, the autoverification of that test stops—right there. It provides QC compliance to the fullest.

It's a combination of these four features— customizable review ranges, delta checking, QC, and instrument flagging—that makes autoverification all the more powerful, and the way to make sure results pass all of the criteria you've established.

Labs need to look for someone who's going to be there for them. They need to look for reliability. They need to make sure the vendor has the support to produce what they say they are going to produce. Take a look at how long they have been in the market. Are they seasoned? Do they have the resources to back up what they promise you?"

Susan Dawson,
Clinical Lab Manager

Supporting Patient Care with Timely Results

Since the implementation of autoverification, turnaround time (TAT) for routine chemistry has dropped by 24%, and TAT for STAT chemistry by 26%.* The corresponding reduction in TAT for hematology is 41% for routine tests and 27% for STAT. SCH's clinical lab safeguards against human errors by using the computer to manage complex processes and verify proper operation. Significantly, QC review and instrument flagging are part of the data management function on the workstation.

Accommodating Complex Assay Rules and Physician Requests

The flexible rule-writing functions of CentraLink allow complex algorithms, such as those for infectious disease testing, to be incorporated, ensuring consistent adherence to assay rules. Physician-specified follow-up actions, often encountered in oncology testing, are readily accommodated. Similarly, the system makes sure appropriate sample types (e.g., plasma vs. serum) are used for specific assays (e.g., serum for TSH, plasma for ammonia, or lactic acid).

Enhanced Results Management with Delta Checking

The delta check function compares current results against previous ones from the same patient and can help highlight potential problems and anomalies that require technologist attention and/or notification of the clinical staff.

Assurance of QC Compliance

CentraLink includes comprehensive QC tools with flexible and easy-to-program query capabilities. This streamlines the process for QC data management on all the analyzers in the lab, ensures that problematic results are not reported, and provides an electronic data trail for regulatory compliance.

Monitoring Multiple Analyzers from a Single Workstation

The instrument-flagging feature alerts the technologist to unusual results from specific analyzers. Potential problems (e.g., results exceeding instrument linearity limits) are displayed to prompt technologist intervention.

A Long-Term Partnership

Achieving quality results, cost-efficiency, and staff satisfaction requires strategic deployment of human resources and technology through partnership between the clinical lab and the vendor providing the technology solutions.

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