Customer Success Story

Proactively track our performance and demonstrate to our stakeholders and staff we are not just 'doing more with less' but 'being better with less'.

Dartmouth-Hitchcock

DATA INNOVATIONS®
Simple Ideas, Better Solutions

"We have had departmental metrics for our Chemistry / Immunochemistry areas as long as I have been the Point of Care Testing and Chemistry Supervisor", said Frank Polito, MBA, MT (ASCP) SC of Dartmouth-Hitchcock Medical Center. "The challenge has been where to get the data, how long does it take to scrub the data once you actually get it and then how detailed is the data to really tell you how you are performing." Polito would build queries or run reports from his Cerner Millennium LIS but the flexibility he needed was not there. "I needed to quantify to my stakeholders and most importantly to my staff, how we were performing and provide them with information so we could determine how to be more efficient. Not just 'do more with less' but rather 'being better with less'."

Dartmouth-Hitchcock Medical Center is a nonprofit

Dartmouth-Hitchcock Facts:

- Academic, non-profit Health System, Comprehensive Cancer Center, Level 1 Trauma Center, Children's Hospital, with 30 outpatient clinics
- Beds: 396
- LIS: Cerner Millennium
- Region: Northern New England

academic health system that serves a patient population of 1.9 million in New England and services Dartmouth-Hitchcock Medical Center and a National Cancer Institute-designated Comprehensive Cancer Center and the state's only comprehensive, full-service children's hospital. They also service 30 outpatient clinic locations across multiple states and train nearly 400 residents annually and perform world-class medical research.

"To accomplish this", said Frank Polito, "we have a series of Roche Diagnostics Cobas® 6000 instruments connected to our Roche MODULAR *PREANALYTICS* (MPA) automation system. With growth in testing volumes of 8% to 10% annually and outreach increasing over 20%, our organization has invested in the tools to handle the volume. With a complex, sophisticated chemistry environment and continual growth and change, how can you monitor your productivity, find way to optimize the resources you have and truly be better with less."
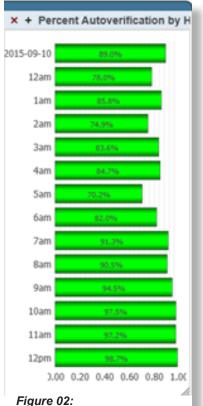
Dartmouth-Hitchcock Medical Center was one of the first to receive Laboratory Intelligence™ from Data Innovations® to monitor, manage and improve their

Figure 01:
Screenshot from Dartmouth-Hitchcock's Laboratory Intelligence Chemistry WorkCell Dashboard

Figure 02:
Key Performance Indicator for Autoverification Levels by Hour

Clinical Chemistry operations and provides immediate feedback of their performance and to monitor for trends and determine ways to optimize their people, processes and platforms they have.

"Our first challenge was to automate our current metrics so these would be provided in real-time as opposed to our monthly routine to gather the data and see how we did last month." Polito's initial metrics included how many samples/tests per hour, specimen priority mix hourly, the levels of autoverification and turn-around times also on an hourly basis. Now with Laboratory Intelligence access to this information is one click away via a web-browser and updated as often as they choose. "We are even implementing big screen monitors in the workareas so detailed status is not one click away but rather one glance-away."

Chemistry WorkCell Dashboard

Once their baselines were established, they use this information to:

- Adjust draw times for various units and schedule courier drop offs to maximize instrument utilization and minimize total turnaround time.

- Perform scheduled instrument and automation maintenance at the appropriate times to exceed service levels for their clients.

- Determine bench staffing levels and times to match volume and turn-around times and match appropriate coverage with the appropriate skills and volume.

- Show the percentage that is being automatically verified versus manually verified which allows drill-down capabilities to determine if additional rules should be developed to continue to increase the autoverification levels. This allows the technologist to spend more time on the true exceptions and time to be consultative to their clients.

- Providing traceability to specific phlebotomists or wards that require additional training due to increased hemolytic specimens from their area of responsibility.

- Status at glance for those in the lab to see up to the minute information on their performance

- Demonstrate proactive monitoring and reporting of service levels to clients and outline ways to reduce turnaround time and monitor collaborative efforts.

The information is not only constantly updating but if the detail behind the graphs are needed, the laboratory can either filter the data or click a component of a graph and drill down to the base level data to the details that created the graph.

"The same data can be looked at in different ways. For instance, one of my KPI's monitors autoverification levels throughout the day by hour. Initially, I was interested in determining why autoverification was 82% at 6 am and 97.5% at 10 am. As I was able to drill down to the details, it was the number of inpatients and the associated critical values and frequency of hemolyzed specimens that required more manual intervention as opposed to the higher volume of outpatient and outreach specimens at 10 am that do not. Then using the same KPI, I could then isolate the areas that had high frequency of hemolytic values and demonstrate the need for targeted training to reduce turnaround time and costs associated with testing. Now that same KPI provides insight on what specimen conditions fail autoverification and I can prioritize developing new rules in my autoverification to provide consistent levels of autoverification regardless of the mix of patient types."
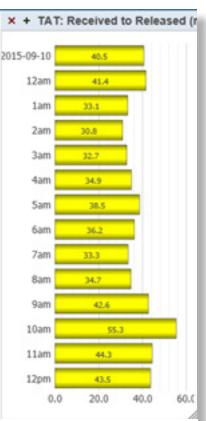

Figure 03:
TAT from Received to Released by Hour

Laboratory Intelligence provides 15 of pre-configured key performance indicators (KPI's) with the ability for laboratory to modify the KPI's as they need or develop completely new KPI's for their organization. As an example, Polito is working on showing Turnaround Time KPI not as a number of minutes per hours for turnaround but developing a stacked bar chart so that the turnaround time can be stratified. "Rather show turnaround time is 33.3 minutes at 7 am, I will show time from physical reception to time placed on automation followed by time from automation to time to instrument, followed by time from instrument to time verified. This will identify any bottlenecks and look at the exceptions to continue to be 'better with less.'"

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Cobas is a registered trademark of Roche Diagnostics.
Cerner Millennium is a registered trademark of Cerner Corporation.

About Data Innovations

Founded in 1989, Data Innovations (DI) is the world's largest, most successful clinical and blood laboratory middleware company. With a focus solely on laboratory data management, DI offers the most complete middleware system in the market to manage laboratory operations, including pre-analytical, analytical, and post-analytical sample processing and non-clinical tasks such as equipment maintenance and specimen archiving.

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