



## Case Study

# Columbus Regional Health Leverages Informatics and Automation

Improves Lab Quality and Efficiency

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A close-up, profile view of a man with dark hair and glasses, looking intently at a computer screen. He is wearing a light-colored, possibly white, lab coat. The background is a laboratory or office environment with shelves containing various items, including colorful folders and papers. The lighting is soft and focused on the man's face.

*“What I like best about the Atellica Process Manager is the ability to work from a single terminal... What a time saver!”*

Jonathan Sy Tan, MLS(ASCP)CMSCM  
Chemistry and Immunochemistry Testing Supervisor  
Columbus Regional Health

# Columbus Regional Health Leverages Informatics and Automation to Improve Lab Quality and Efficiency



In the fall of 2017, Columbus Regional Health (CRH) embarked on a quality improvement journey to improve patient testing workflow and decrease laboratory costs. CRH focused on consolidating emergency department (ED) POC testing on core lab instruments, improving workflow for consistent turnaround times, automating the identification of problem samples, and better managing reagents and consumables. To accomplish these goals, CRH is leveraging the benefits of Siemens Healthineers informatics and automation solutions, including Atellica® Process Manager (PM), Centralink® Data Management System, Aptio® Automation, and Dimension Vista® Intelligent Lab Systems.

## Consolidating Testing in the Core Lab

The laboratory moved POC testing from their dedicated ER POC bench to their core laboratory automation line on December 20th, 2017, which presented a major operational shift for CRH. To ensure success, lab management agreed to meet an aggressive turnaround time (TAT) of less than 30 minutes for ED samples. For all other departments, the lab committed to a less-than-40-minute TAT. Atellica PM's dashboard is one tool that helped CRH achieve these results.

## Centralized Dashboard Improves Workflow

"What I like best about the Atellica Process Manager is the ability to work from a single terminal," says Jonathan Sy Tan, MLS(ASCP)CMSCCM, chemistry and immunochemistry testing supervisor at CRH. "In the busy laboratory atmosphere, it gives the technologist the ability to multitask, handle problems, and answer questions without running all over the lab. What a time saver!"

With testing information consolidated on one screen, staff members can remotely access and control connected systems. This functionality not only reduces the time and physical steps needed to manage testing, but it's also helping CRH to better manage priority samples. "For our ED samples, we have troponin and BMP on the same accession. The BMP samples finish before the troponin," says Sara Moening, Chemistry Lead at CRH. "To help turnaround time on priority samples, I will remotely release the BMP result. In the ED, they often want the BMP for imaging. Giving them these results helps them more quickly assess the patient. Before we had Atellica Process Manager and the [Dimension] Vistas, we had to go to the instrument, find the sample, and retransmit it. Now, we can locate it remotely and push it through."

## Achieving Consistent TATs

The patient is at the center of CRH's operations. As a large, nationally recognized health system, ensuring prompt and accurate treatment in the ED is imperative

to their pursuit of excellence. "The ED physicians want consistency," Tan remarked. "To them, this wasn't about saving costs, it was about ensuring the best result, and it is my job to make sure we get results quickly and accurately." To ensure this, CRH has set up sample rules in Atellica PM to generate priority sample alerts. For STAT ED tests such as troponin, lactate, and glucose, CRH has programmed Atellica PM to indicate At Risk if TAT is greater than 20 minutes and Overdue if greater than 25 minutes. This 5-minute buffer allows the staff to intervene, if needed, and prevent samples from missing the promised 30-minute TAT.

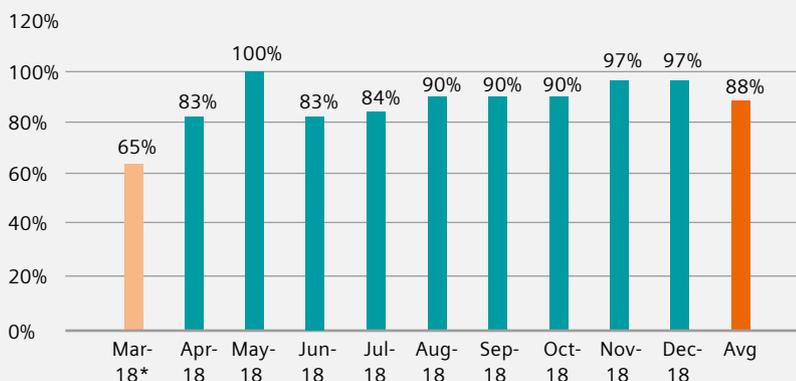
For non-STAT testing, CRH set Atellica PM to indicate At Risk if the TAT is greater than 30 minutes and Overdue if greater than 35 minutes. With Atellica PM, sample status is easy to determine with one glance at the dashboard. Yellow flags indicate at-risk samples, and red flags indicate overdue samples.

In addition to setting up rules to ensure TAT, Atellica PM is helping CRH quickly and accurately answer questions about the progress of testing. "We receive several phone calls from staff asking how long it is going to take for a specific test. Using Atellica Process Manager to remotely access the [Dimension] Vista analyzers, I can manage samples and see sample processing time," says Moening. "I can locate the sample and tell the physician, for example, it's going to take 2 minutes, and I know it really is going to be 2 minutes."

## Identifying Problem Samples, Saving Staff Time with Analytics

The ability to more quickly identify and resolve problems along the line is vital to meeting TAT goals. CRH historically tracked problem samples using a manual process. This tracking was time-consuming and imprecise, which made it more difficult for the staff to identify and locate problems. When CRH added Atellica PM, the staff stopped manually recording sample failures and started using the system's analytics capabilities.

Emergency Department Sample TATs Compliance



\*Atellica Process Manager implemented.

Measure	
Troponin-I	n
	In-Lab Avg TAT
	% Outliers > 30 min
Lactic Acid	n
	In-Lab Avg TAT
	% Outliers > 30 min
BMP	n
	In-Lab Avg TAT
	% Outliers > 30 min

“With Atellica Process Manager, it tells you the error, and you’re able to troubleshoot it and complete the testing,” says Tan. “Before, it took several minutes every time there was a tube failure. My staff no longer has to keep writing it down.” CRH also uses Atellica PM to monitor and track the number of clotted samples the lab receives. Atellica PM flags these samples, and CRH is able to immediately address them on the line. “I can figure out what’s going on and, if possible, put the sample back on the line,” says Barbara Salee Lead Tech at CRH.

## Columbus Regional Health, Columbus, IN

- Serves 10 counties in southeast Indiana
- 225 beds
- 225 physicians
- 2 million tests processed annually

Source: <https://www.crh.org/about-us>



Owner	Threshold	Day of Month																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jonathan		56	61	34	34	40	40	43	44	41	52	37	44	28	28	74	38	31	36	27	29	28	59	51	47	38	50	46	30	48	40	40
Jonathan	≤30 min	19	21	18	24	20	21	22	19	20	20	20	21	21	19	22	27	24	21	20	18	21	20	23	20	20	21	20	20	20	20	
Jonathan	≤10%	1	6	0	1	2	7	7	4	7	3	2	2	10	7	2	5	6	8	7	0	3	6	3	8	2	6	6	3	2	5	4
Jonathan		14	26	10	10	13	10	11	18	9	17	19	17	14	9	21	18	15	10	10	20	15	23	15	16	12	14	13	6	13	16	15
Jonathan	≤30 min	18	18	19	22	18	21	19	21	19	19	19	19	19	22	18	19	21	21	18	19	16	19	19	19	18	19	19	22	20	18	19
Jonathan	≤10%	0	0	0	10	0	0	9	6	11	5	0	0	7	11	0	0	6	0	0	0	0	4	6	0	0	7	0	17	0	0	0
Jonathan		52	74	54	46	47	38	52	65	52	55	52	50	43	45	69	57	52	61	39	51	39	59	57	73	52	51	54	46	54	59	51
Jonathan	≤30 min	16	18	17	19	18	21	19	18	17	19	18	19	19	20	17	18	19	19	17	18	18	18	17	21	19	19	20	19	18	18	18
Jonathan	≤10%	1	2	0	2	2	2	9	1	3	3	1	2	4	6	0	1	3	1	0	1	5	3	0	8	1	5	7	6	3	0	1

For the Month of August 2018 (27/31) = 90%

CRH ED TAT compliance data is based on each test (Troponin, BMP, LA) being 90% for the day. If one test falls below 90% CRH counts that as unsuccessful for that day.

## Optimizing Management of Reagents and Consumables

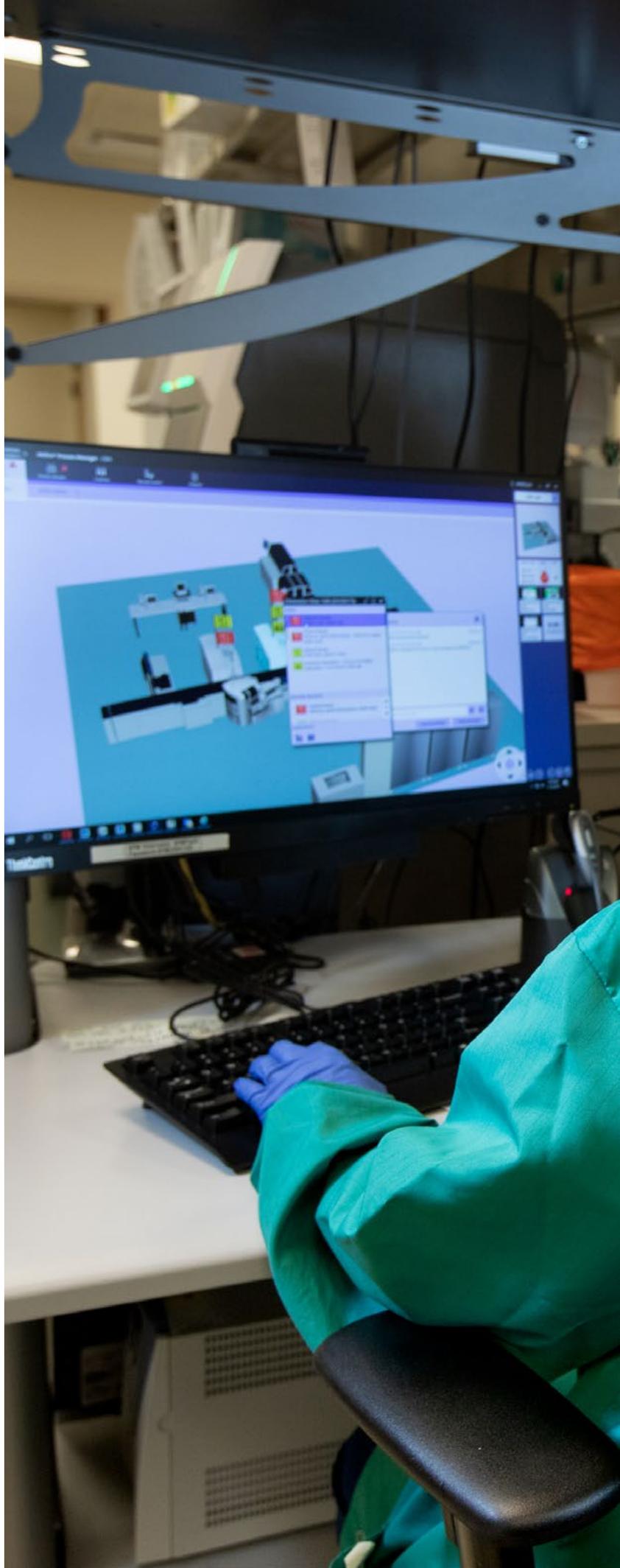
CRH also uses alert rules in Atellica PM to assist technologists with monitoring reagent and consumable data. These rules help ensure that consumables are available to perform testing and provide specific alerts based on predefined criteria. For example, a yellow warning flag appears on Atellica PM's dashboard to indicate that instruments have less than 2% of a consumable remaining or that reagents are due to expire within 96 hours. "The most helpful alert for me is 'Your reagents are going to expire,'" says Salee. "This alert gives me a chance to calibrate ahead of time, so I don't have to run back and check on the system. This is especially useful if our consumables are running low."

From turnaround times and sample tracking to reagent and consumable monitoring, Columbus Regional Health is leveraging Siemens Healthineers laboratory informatics and automation solutions to help improve its lab quality and efficiency. "As a supervisor, Atellica Process Manager has helped me understand and reassess the department's workflow and improve upon it," says Tan. "Based on data I gather from the analytics report, it has helped me standardize workflow [and] monitor and achieve our TAT goal."



### Results Achieved at CRH

- \$149,000 saved by consolidating ED POC testing to core lab instruments
- Easier identification of at-risk samples by Atellica PM, enabling staff to monitor and ensure on-time completion
- More efficient identification and resolution of samples with integrity issues
- Instrument event monitoring enabling timely replacement of consumables and reagents
- Average of 88% TAT compliance for ED samples since Atellica PM installation



A photograph showing two women in teal scrubs in a laboratory or clinical setting. One woman is seated at a computer workstation, looking at a monitor. The other woman is standing next to her, leaning in to look at the same monitor. The background shows laboratory equipment and shelves.

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I can locate the sample and tell  
the physician, it’s going to take  
2 minutes, and I know it really  
is going to be 2 minutes”*

Sara Moening  
Chemistry Lead  
Columbus Regional Health

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We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With more than 48,000 dedicated colleagues in 75 countries, we will continue to innovate and shape the future of healthcare.

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