

St. Agnes Medical Center Adopts Automation to Increase Lab Efficiency and Accommodate Growth

Laboratory Profile

- St. Agnes Medical Center, Fresno, California
- 330 licensed beds
- Operates 24 hours a day
- 114 FTEs
- Performs 1.2 million billed tests annually
- Utilizes Beckman Coulters Power Processor Pre-analytical Automation System, two SYNCHRON LX[®]20 Clinical Systems with a CHEMExpress module, one 3,000-tube refrigerated storage unit and two COULTER[®] Gen•S[™] Hematology Systems.



Speed and efficiency are crucial elements for every laboratory. And when St. Agnes Medical Center implemented a front-end automation system, the lab quickly witnessed reduced turnaround time, improved productivity and the ability to accommodate a growing workload with its current staff.

Overview

St. Agnes Medical Center is a 330-bed hospital in Fresno, California, that serves a population of 1.7 million residents in six nearby counties. By December 2004, the hospital expects to complete a major building expansion — which will add another 100 inpatient beds and nearly double the hospital's facility size.

Poised For Growth

The hospital laboratory currently processes approximately 1.2 million billed tests per year and is poised for significant growth in test volume when the hospital's new facility is complete.

According to Sandra Jordan, Director of Laboratory Operations, the lab has also experienced a consistent rise in annual test volume (between 5 and 7 percent) over the last decade, as a result of effective marketing efforts, a steadily increasing outpatient business and the hospital's growing popularity within surrounding areas.

In addition to a growing test volume, the laboratory supports a busy inpatient facility and emergency room, while also managing five outpatient laboratory satellite sites whose specimens are sent to the main laboratory by courier several times each day.

"We expect that we'll have the capacity to double our Outpatient Center Laboratory collection site, located within the Medical Center, within the next year or two — and we currently see between 250 and 300 patients a day," said Jordan. "We'll also be increasing our number of inpatient beds by about 25 percent. Considering what is on our facility's horizon, we were looking for a way to handle our increasing testing requirements without adding lab staff."

During the lab's recent years of growth, Jordan noted that the lab often experienced difficulty keeping up with the front-end specimen processing — receiving the specimens, spinning them down and getting them to the testing site.

That's where Beckman Coulter was able to share its expertise. It demonstrated how the laboratory could connect its two LX20 systems and a Bayer Centaur to a Power Processor front-end automation system to accomplish its diverse goals. Within Beckman Coulter's classification of automation levels, the system is designed as an integrated automation configuration which links workstation components together. This gives the laboratory the flexibility to manage high workloads, while improving processes and reducing costs.

"At this point, we have automated about 80 percent of our routine chemistry work which is our busiest department and we're very happy with our results," said Jordan.

The Power Processor system automatically loads and unloads the centrifuges and decaps specimens. It also loads samples onto instruments, recaps specimens and automatically retrieves the specimens that need to be retested from the online, 3,000-tube refrigerated storage stockyard.

Results That Speak For Themselves

After the Power Processor was installed, the lab noticed an immediate reduction in turnaround time. The lab's stat chemistry turnaround time to the busy Emergency Department decreased by 40 percent, while its routine chemistry turnaround time was shortened by 54 percent.

Laboratory Goals	Laboratory Results
<ul style="list-style-type: none"> Improve turnaround time (TAT) 	<ul style="list-style-type: none"> Reduced stat ER chemistry TAT by 40 percent. Reduced routine chemistry TAT by 54 percent.
<ul style="list-style-type: none"> Reduce potential medical errors and improve worker safety 	<ul style="list-style-type: none"> Reduced manual processes, such as sample sorting, decapping and recapping, thereby reducing biohazard exposure and potential for injuries.
<ul style="list-style-type: none"> Enhance efficiency 	<ul style="list-style-type: none"> Streamlined workflow and poised the lab to accommodate higher test volumes.

"By reducing turnaround time variability, our automation system has enabled us to get test results to physicians in a reasonable time frame, so they don't feel they need to order stat tests," said Jordan. "Therefore, it has helped us reduce physician complaints, which makes our lab environment much more positive."

The lab is also witnessing both patient and lab safety improvements. The automation system decreases the opportunities for medical errors since it eliminates many manual processes in sample processing. Because the Power Processor automatically decaps and recaps samples, it reduces the risk of repetitive motion injuries as well as exposure to biohazards and sharps injuries to staff members.

Plus, the Power Processor has helped the lab process samples more evenly throughout the day. "Our outpatient workload used to be addressed more toward the end of the day shift and into the PM shift," said Jordan. "But now, because of the way we have designed our new process, those samples are getting processed much more throughout the shifts. And again, those test results are now available to our physicians during their office hours, instead of in the evening or the next morning when their offices are opened."

According to Jordan, automation has also simplified common practices, such as repeating a test. The computer expertly locates the sample in question and the automation system immediately retrieves it from their refrigerated storage unit and returns it to the analyzer for a rerun.

For the lab staff, these features have made the Power Processor a true timesaving resource. And the fact that the system can be loaded and operated easily by non-technical staff members — throughout the day — pleases Jordan. Automation has given her lab staff the freedom to work everywhere in the lab, whereas before, staff members had to be stationed primarily in front of analyzers.

"In addition to the positive results we've witnessed in our testing process, we were also amazed at the efficiency of Beckman Coulter's installation team," said Jordan. "The whole project was completed from uncrating components to live operation within just one month."



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