



The Power of Process™ in Action

Automation and Innovation Spell Award-Winning Success At St. Michael's Hospital's Diagnostic Laboratory

Laboratory Profile

- **St. Michael's Hospital, Toronto, Ontario, Canada**
- **Full-service diagnostic laboratory operates 24 hours-a-day**
- **Performs 4 million annual tests**
- **Processes 1,600 tubes of blood per day**
- **Employs 220 multi-disciplinary lab staff members**
- **Relies on a Power Processor, two SYNCHRON LX®20 analyzers with a CHEMExpress Upgrade**

Situation Overview

St. Michael's Hospital, a 600-bed hospital located in downtown Toronto, is one of eight teaching hospitals in the city of more than 3 million people. The laboratory maintains a staff of 220 and a test volume in excess of four million tests per year. In addition, the lab is a referral site for 48 different institutions in central Ontario and performs more than a million dollars a year in referral business.

In 1996, hospital managers restructured the organization to achieve greater cost efficiencies. Specifically, the lab was urged to reduce overall costs by 25 percent – an objective that seemed insurmountable at the time, but one that became attainable with a little help from Beckman Coulter.

At the same time, Canada's Ministry of Health closed the nearby Wellesley Hospital and transferred all of its laboratory services to St. Michael's Hospital. To make matters worse, many of the Wellesley lab employees chose a severance package over a transfer – and while the people were not moving to St. Michael's Hospital, the test volume certainly was.

Finding the Right Solution

"We were taking on a huge influx of new work – an increase in test volume of about 70 percent," says Robert Fox, Director of Laboratory Medicine. "Yet we didn't have much room to expand physically."

"After we carefully considered our current equipment capabilities and processes, it became obvious that it was the ideal time for us to change our front-end sample processing and chemistry testing processes by creating an automated core lab," he says. "So we decided to start from square one and completely rebuild our 27,000-square-foot lab."

"To offset the loss of many Wellesley staff members, we needed to leverage technology," says Fox. "We simply needed to find the right solution that could do the extra work."

After reviewing the entire automation industry and potential vendors, the lab narrowed its vendor selection down to just two: Beckman Coulter and Roche.

Laboratory Objectives	Laboratory Results
• Decrease turnaround time	• Reduced general chemistry turnaround by 18 percent; electrolytes by 12 percent
• Increase testing capacity	• Increased test volume by 70 percent
• Improve quality and satisfaction	• Increased staff satisfaction by 13 percent • Decreased complaints, errors and pending tests



"Our goal was to eliminate the robotic type of activity – the many non-value-added motions and movements," says Fox, whose background is in management, not medicine. "I used to say to the staff members, 'If I could do it, you shouldn't be doing it,' because they are being paid to be technologists, not robots."

"After more investigation, we eliminated Roche because they didn't have a system that was truly integrated," says Fox. "We needed a system that would allow us to put samples in on the front end and receive them off the back end with all reports generated automatically."

Maximizing Efficiency Through Automation

The right solution for this lab turned out to be a Power Processor, two SYNCHRON LX[®]20 systems and a CHEMxpress Upgrade that directly connects the analyzers to the automation system.

This automated solution, however, wasn't just a first for the hospital. It was a first for the entire area. As one of the first in Canada to automate both the pre-analytical and analytical phases of the laboratory process, St. Michael's Hospital laboratory has increased speed, accuracy and efficiency.

"We quickly learned that with automation we could move people

out of the chemistry department, and put them into other revenue-generating areas – which just helped our bottom line," he says.

"All of our financial indicators point to the fact that we have accelerated past our initial targets for cost savings," says Fox. "Our objective is to save 1.8 million dollars over the next five years, and to date, we're actually ahead of schedule."

A Bounty of Benefits

Today, the consolidation of services onto one instrument platform has helped the lab reduce its total number of FTEs and has sparked significant savings in reagent costs, equipment maintenance and service. Plus, the lab increased staff satisfaction by 13 percent – specifically in the area of equipment and the ability to work with technology.

In addition, the lab significantly expanded its test menu. Many tests that were done manually or performed on a

more obscure piece of equipment were moved to the LX20 systems. Fox explained that the lab had 12 instruments performing toxicology testing; today, it relies on the LX20 systems for all routine toxicology testing.

"Before automation, we used to do a lot of our referral business at night or during slow times," he said. "Now, we put those tests on the system as they arrive, because we can handle the capacity. As a result, we've been able to achieve faster turnaround times for our referral sites, which has allowed us to improve our rapport with them, increase our business, and put us in a leadership position for pricing."

"We've also seen a marked decrease in errors, and fewer complaints about pending orders, lost orders and testing turnaround time," says Fox. "In fact, we haven't had one complaint about turnaround time since we got the Power Processor up and running."

For general chemistry tests, turnaround time decreased by 18 percent, and turnaround time for electrolytes decreased 12 percent. Plus, the automation system has eliminated pre-treatment processes for iron and HDL cholesterol.

In the future, St. Michael's Hospital laboratory plans to add a recapping unit to its automation system, as well as a complete hematology and coagulation line.

Award-Winning Results

"It's just a piece of equipment, but we're amazed at the attention we've derived from it," says Fox. "We have visits from people all over the country – prospective Beckman Coulter customers, as well as others who own Power Processors and want to learn from our process. The system has been extremely successful and we've gained a lot of positive feedback."

St. Michael's laboratory was also recognized with an Award of Excellence from the Canadian Information and Productivity Awards (CIPA). The CIPA is the largest business awards program in Canada, recognizing Canadian organizations for their effective management of information technology.

"In essence, we've created a sort of partnership with Beckman Coulter," adds Fox. "It wasn't just us buying a piece of equipment and paying a bill. We actually created a relationship in which we have mutual hurdles to get over, but we share in the risk and we share in the benefits. It's something that has been extremely pleasant and refreshing for me to experience."

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