

Children's hospital improves testing turnaround time by 27-56%, realizes more than \$290,000 in savings

Le Bonheur Children's Medical Center

Concerned about its lab's productivity, Le Bonheur Children's Medical Center invited ValuMetric Services to help it implement Lean practices. In just 12 weeks, the lab achieved dramatic improvements in turnaround time and increased its capacity while reassigning 5.9 FTEs.

Trailing other hospitals in lab productivity

Memphis-based Le Bonheur Children's Medical Center was lagging its peers in lab productivity. In a membership survey conducted by the Child Health Corporation of America, it ranked 21 out of 23 in terms of hours worked per billed test.

No solutions emerged from conference calls with peer group hospitals. "We asked about their staffing mix and their schedules," says Administrative Director of Operations Sheon Lynch. "But after five or six different calls, we couldn't pinpoint anything that they were doing differently. We needed to do more than replicate benchmark practices."

A nearby hospital had used ValuMetric Services to implement Lean in its lab. "We returned from our visit saying, 'This is what we need to do,'" Ms. Lynch recalls.

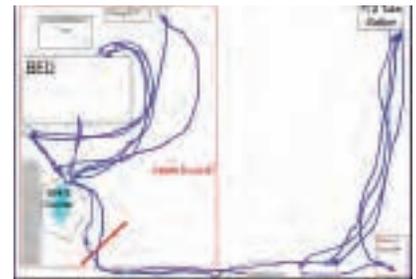
Le Bonheur evaluated another consulting company before deciding on ValuMetric Services. But according to Ms. Lynch, "We preferred ValuMetric because of their extensive experience in healthcare." A preliminary assessment assured management that the project would more than pay for itself in labor savings. The lab assembled a six-person Lean team to be trained and mentored by a ValuMetric consultant.

Second-by-second analysis of product flow and operator activity

The Lean team's first step was to videotape its product flow from beginning to end. A second round of videotaping focused on technologists as they performed each test. "It was outrageous," Ms. Lynch recounts. "We knew our people walked around, but until we actually watched the videotape we hadn't realized how much. They'd cross the whole lab just to throw a piece of paper into the trash."

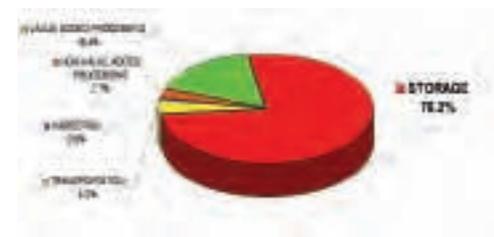
The team conducted a second-by-second analysis of the videotapes, mapping walk paths and identifying which activity added value.

BEFORE LEAN



Because the sharps bin, hand cleaner and latex gloves were placed throughout a room, a single blood draw took 11:25 minutes and required the phlebotomist to walk 683 feet.

Product Process Flow



Just 16.4% of a product's time in the lab was spent in value-added activity. The vast majority, 76.2%, was spent waiting.

Poor inventory management contributes to shortage of space

Observing the workflow revealed an inventory management process that was haphazard at best. Responsibility for ordering was shared by several people, so there was frequent duplication and overstocking. Critical supplies still ran out, though, so technologists filled drawers and cabinets with extra reserves.

With no one formally managing these secret stashes, the result was a chronic shortage of space. “We found materials that were 10 or more years old that nobody had ever cleaned out,” Ms. Lynch says. “Everybody assumed that someone else was using it.”

BEFORE LEAN



Each phlebotomist had a personalized supply tray, even if he or she worked just once a month.

TINY MOTIONS ADD UP TO BIG WASTE

The extra motion seemed minimal. Every time an operator needed to write something, he'd draw a pen from his lab jacket pocket and uncapped it. Then he'd recap the pen and return it to his pocket.

“It took just two or three seconds,” says Sheon Lynch, “but over the course of 15 minutes, he uncapped and recapped that pen more than a dozen times. If we hadn't videotaped him, we never would have noticed.” The simple time-saving solution? Place an uncapped pen at each workstation.

Identifying key causes of waste

The Lean team reviewed its results and identified several key causes of waste. They included:

- Batch processing that increased the risk of error and left individual samples sitting while technologists waited for a batch to accumulate
- An equipment and supplies layout that did not match the flow of work
- Lack of standardization in performing the work
- Redundant inspections of the same samples

Developing practical solutions

Guided by their ValuMetrix mentor, the team developed solutions for each cause of waste. These included:

- Switching from batch processing to single-piece flow
- Rearranging tools and equipment to minimize operator travel
- Removing nonproductive inventory and instituting a formal supply management process

AFTER LEAN



Multiple phlebotomy trays were consolidated into four standardized carts.



Stocking frequently needed items on a portable cart reduced phlebotomist travel by 56%.

Cycle time improves by 27-56%

Just three months after kicking off the project, the Lean team's changes brought dramatic results.

- Mean turnaround time for chemistry tests dropped from 59 minutes to 26 minutes, a 56% improvement.
- The mean turnaround time for hematology tests fell from 39 minutes to 25 minutes, a 36% improvement.
- Turnaround time for coagulation tests improved by 27%.

The lab's turnaround is so consistently fast, it has discontinued special STAT processing for Emergency Department orders. "All our orders now go as quickly as STAT orders used to go," Ms. Lynch explains.

Meanwhile, increased productivity has enabled the lab to reassign 5.9 FTEs for a labor savings of \$248,000 per year. (Management estimates that the lab can now handle a 50% increase in work volume without adding staff.) Inventory reductions helped trim more than \$175,000 from supply expenditures. Ms. Lynch estimates that at least one quarter of that was a result of the Lean initiative, bringing the total annual savings to well over \$290,000.

"I totally believe in Lean," Ms. Lynch states, "but I'm never going to tell anybody this was a simple process. It was a transformational change that required us to rebuild our entire process practically from scratch. There's no way we could have done this without the ValuMetrix consultant taking us through it, showing us how to use the tools and helping us get top management and other departments on board."

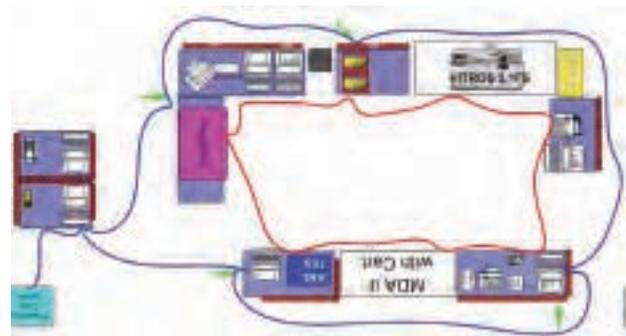
Delighted with these results, Le Bonheur's management is planning Lean initiatives in the Surgery Department and other areas of the laboratory. "This project marked the beginning of our new Lean culture," Ms. Lynch remarks.

BEFORE LEAN



Because frequently needed supplies were not stored near equipment, technologists made frequent trips to the supply closet.

AFTER LEAN



With supplies stored in nearby bins and equipment arranged in the order it is needed, a technologist can work by walking a steady circuit. A runner circulates outside the workspace, delivering specimens to each device.

LEAN SNAPSHOT

Client	The laboratory of Le Bonheur Children's Medical Center
Vitals	<ul style="list-style-type: none"> • Part of the Methodist Le Bonheur Healthcare system, which also includes six adult hospitals in the Memphis, Tennessee area • Performs 457,000 billable tests per year • Employs 64 FTEs
Project Goal	<ul style="list-style-type: none"> • Improve FTE productivity • Reduce test cycle time
Process	A Lean team videotaped the current product flow and operator activity. It identified key causes of waste, including batch processing and placement of equipment and supplies that did not match the flow of work. The team developed a more efficient layout, switched to single-piece flow, cleaned out non-productive inventory and instituted a formal inventory management system.
Results	<ul style="list-style-type: none"> • Mean turnaround time for hematology tests fell from 39 minutes to 25 minutes, a 36% improvement. • Mean turnaround time for chemistry tests dropped from 59 minutes to 26 minutes, a 56% improvement. • 5.9 FTEs were reassigned for a labor savings of \$248,000 per year. • Inventory spending was also reduced, bringing the total savings to an estimated \$291,750.
Response	<p>“We chose ValuMetrix because their consultants would teach our people the tools. Instead of making a change and that being the end of it, our people can now teach others. The benefits continue to build.”</p> <p><i>Sheon Lynch, MSA, MT (ASCP)</i> <i>Administrative Director of Operations</i> <i>Le Bonheur Children's Medical Center</i> <i>Memphis, Tennessee</i></p>

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