Collaboration, data, and process improvement to lower costs and raise quality
Process Improvement Starts with People, Ends in Hard-Dollar Savings

It is a story that will sound familiar to any health system created by merging two or more entities, each with its own distinct culture. Marlton, NJ–based Virtua was formed in 1998 after a partnership between Memorial Health Alliance and West Jersey Health System. In an attempt to integrate the two organizations, Virtua’s leadership made patient care and delivering an outstanding patient experience their core focus.

The goal was well-intentioned but proved difficult to execute.

In 2003, Virtua leadership conducted an in-depth organizational review of its four hospitals. The results were discouraging: a negative operating margin driven by declining volumes, market share losses, poor expense management, lack of monitoring key performance indicators, insufficient capital to meet reinvestment needs of existing facilities, and—to top it all off—low employee morale.

People were the key ingredient in the turnaround plan. The leadership team focused on interconnected systems, operations, processes, analytical tools, and educational opportunities to support employees in their efforts to consistently provide an outstanding patient experience.

Virtua uses a blend of process improvement tools, including Lean, Six Sigma, Design for Six Sigma, Change Acceleration Process, WorkOut, Failure Modes and Effects Analysis, and root cause analysis. You don’t just choose one over another, says President and COO Ninfa Saunders.

“It’s important to think of this as contiguous, concomitant, or sequential, depending on what it is that you are looking at in terms of process,” she says. “While we don’t necessarily say ‘Lean’ or ‘Six Sigma’ all the time ... it is embedded in every process design that we do. So where there is design, where there is variation, it is immediately known in the organization that is what you do.”
Choosing which projects to work on is one of the first steps of process improvement. At Virtua, Six Sigma specialists and management engineers are deployed whenever process or a rollout of strategy is discussed. One group specializes in identifying which tools are most relevant to a particular project and use empirical evidence to predict success.

“We use the typical problem-solving or opportunity-solving steps of any design—from defining it to measurement, analysis, and improvement, and then reevaluating what it is that we are doing,” Saunders says.

A common employee vision
At the heart of the strategy to fix Virtua’s culture woes—and to establish a foundation for other process improvement projects—was a common employee vision. “If I would point to one thing that enabled us to move forward with all of our toolkit and process improvement, it’s the STAR Initiative,” says CEO Rich Miller. “That was the thing that anchored our employees and this organization to each other.”

Virtua’s STAR Initiative has five points: excellent service, best people, clinical quality and safety, resource stewardship, a caring culture, and—at the center—outstanding patient satisfaction.

“It’s always about our best people at this organization and building a team. And that starts with the management team—it starts with the senior-level team and goes right through the management organization,” Miller says. Trust among team members helps drive the culture. “That openness and that trust allows us to have the deep conversations we have about performance,” says Miller. “The performance is obviously based on our value set as an organization. We don’t use the word ‘values’ lightly. That drives this organization.”

Staying the course with STAR has paid off, Miller says. “We have been climbing, climbing, climbing. I can say at this point that although you never reach your pinnacle, we have come a long way, and the culture’s where it needs to be for sustainability, and that’s the important thing.”

Virtua takes a multi-pronged approach to quantify the state of its culture, which includes:

“Whenever we are rolling out a new technology, whether it’s a smart pump at the bedside or an EMR in the emergency room, a redesign of the work flow is critically important. If you don’t redesign the work flow, invariably, the tool doesn’t get used to its highest level of efficiency.”

James Dwyer, MD, Executive vice president and chief medical officer, Virtua
**Rounding:** “When you talk to your environmental service worker or your nurse or your physical therapist and they can tell you how they fit into the STAR culture at Virtua, then you know you have gotten there,” Miller says.

**Advisory boards:** A 35-member employee advisory board meets once per month to discuss the STAR principles and employees’ role in them.

**Surveys:** Yearly surveys, which include sections on culture, provide tangible and actionable results, says CFO Bob Segin. “We are able to pinpoint by division, by department, by discipline, by job code where the opportunities reside with respect to any cultural gaps that are occurring within the organization,” he says.

With the culture piece under control, Virtua turned its focus to improving efficiency and reducing costs in projects small and large—from making ED operations more efficient to planning and building a new 700,000-square-foot, $450 million hospital.

**A better ED**

Virtua’s two hospitals run at 90%–95% occupancy, and throughput and wait times were a challenge, says Tejas Ghandi, lead management engineer. Solutions included better coordination between the nursing floors, environmental services, and emergency room nurses. Improvements included more efficient triaging of patients after diagnosis and environmental solutions, such as the design of the emergency room. The team examined what should be inside and outside of the ED patient room, what should be available in the nursing unit, how best to view the number of patients waiting for admission, and the optimal placement of computers, monitors, and other equipment.
Employees must be included in the process, Miller says—busy ED nurses in particular want to know the benefits of change. “In a very short period of time—a couple of days—they start to see the impact on their patient flow and the patient experience and they completely buy in to the process. And then that word spreads across Virtua.”

“What you are doing is not only fixing one part of the process, but looking at all the adjacencies across the system so that you are fully optimized in a bigger way,” Saunders says.

Reducing bottlenecks increases efficiency, optimizes capacity, and improves patient experience, she adds.

Wait times were more than an hour. Now they’re 25–35 minutes. “Using the right tools ... we were able to achieve significant reduction in turnaround time,” Ghandi says. “We have seen 40%–45% reduction in the time it takes between when a patient is identified to get a bed to the time the patient actually gets the bed.”

Clinical technology plays a role as well—but while clinical IT can improve outcomes, it can also disrupt clinicians’ practice patterns, says James Dwyer, MD, Virtua’s executive vice president and chief medical officer. “Whenever we are rolling out a new technology, whether it’s a smart pump at the bedside or an EMR in the emergency room, a redesign of the work flow is critically important. If you don’t redesign the work flow, invariably, the tool doesn’t get used to its highest level of efficiency and a lot of times workarounds are developed to avoid the use of the tool. ... Whenever we are looking at technical solutions for clinical problems, we first look at the work flow and how this tool will impact the work flow and how we redesign it to make it more effective.”

Virtua’s programs of excellence, including cardiology, account for about 80% of the organization’s business, so process improvement in these areas is critical. Process improvement tools can help reduce variability in treatment, which in turn improves predictability of the outcome. Mild hypothermia, for example, can help
patients in cardiac arrest, but clinicians were not applying the treatment in a standardized way. “We used the tools to help design a process where we could very rapidly implement a hypothermia approach for patients who qualify and get much more predictable results in terms of temperature control for those patients,” Dwyer says.

**The big move**

Virtua is in the process of building a new 358-bed hospital, slated to open in less than a year. Of course, the organization used process-driven facility design—more than 100 processes will be fundamentally different in the new building. “Traditionally, architects design a facility and you try to retrofit your processes into it. Aesthetically, it really looks like a very good facility, but operationally, it’s a nightmare. What we did was design our processes first, and then pour concrete around it,” Ghandi says.

Processes included materials and patient flow, equipment storage, and consolidation of services. The new facility will have decentralized nursing stations. Every six-bed unit will have dedicated supplies, medications, and documentation tools.

“Ordinarily, units and facilities are designed by architects and engineers, but this facility has actually been designed by the clinicians, with the help of the engineers,” Dwyer says.

“They have really been able to tackle a lot of the problems they have historically had in terms of their work flows by helping to redesign it. ... You can imagine how much engagement there is from the clinicians in this situation, and how much buy-in there is, quite frankly, for the changes that are made, because they really are making the recommendations for those changes.”

In a patient-first design, it makes sense to have patient input into the design. Patients visited model rooms and gave feedback, such as making bathrooms for postpartum moms more private than in labor and delivery rooms. “We took the input of the patient and the clinician and then used our management engineering techniques to design it from that perspective,” Miller says. “From a clinician and a patient perspective, it’s optimal.”

User-driven design and an emphasis on getting it right the first time has meant few change orders and a whole lot of cost savings, Ghandi says. From talking to other organizations, the team knew that move-day consultants could cost upwards of $1 million. At Virtua, Ghandi and one management engineer are running the project using a number of process improvement tools. “It’s probably one of the most beautiful things I have ever seen in terms of how well orchestrated it is, to the finest, most granular second of the move, and any possible optimization of barriers that could happen as a result of this,” Saunders says.

Virtua’s process improvement projects have resulted in real savings. “We don’t measure the soft productivity opportunities; we really measure the hard-dollar items when we enter into these [performance improvement] projects,” Segin says. “The only true measure of an organization is through its results. And our results are outstanding.” Miller says. “This stuff works, and it works because we have a great culture at Virtua. It’s just not about putting tools in place; the culture has to be right to accept the tools.”
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