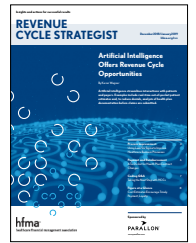


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Using Lean Six Sigma to Improve Healthcare Business Processes

By Bruce Lancaster

Employees from across a large health system participated in a rapid improvement event to achieve regular, incremental process improvements.

Lean Six Sigma is a continuous improvement methodology that brings together cross functional teams to solve complex business problems. Its history as part of the Business Excellence methodology can be traced back to post World War II in Japan, but perfected and coined by a Motorola engineer in the mid-1980s (*The History of Six Sigma*, iSix Sigma, October 2018). It was found that the methodology could be applied anywhere variation and waste exist, and that every employee should be involved (*A Brief Introduction To Lean, Six Sigma and Lean Six Sigma*, Grey Campus, March 2018). As a result, organizations can reduce defects and improve the velocity of their processes.

The integrated Lean Six Sigma management approach is being used across sectors and industries. Specifically, healthcare organizations are slowly recognizing the exceptional changes in their performance driven by Lean Six Sigma. Those that have are reaping the benefits of continuous process improvement.

A state-of-the-art, 139-bed, regional healthcare system in Louisiana is an example of the power of Lean Six Sigma. Through coaching and with the assistance of a business excellence team provided by the health system's revenue cycle business partner, leaders at this system saw tremendous potential with the business excellence methodology

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Dashboard for Financial Clearance and Days Sales Outstanding Performance

Weekly goal tracking and performance helps staff recognize areas for improvement.

Scheduled Financial Clearance	Jan. 2018	Feb. 2018	March 2018	April 2018	May 2018	June 2018	July 2018	Aug. 2018	Sept. 2018	Oct. 2018
Cath lab	100%	67%	56%	44%	38%	64%	38%	67%	53%	56%
Same day care/Endoscopy	88%	89%	56%	66%	29%	54%	31%	60%	76%	55%
Ultrasound/Louisiana Sleep Foundation	60%	58%	19%	20%	35%	39%	33%	40%	45%	31%
CT Scan	50%	95%	57%	77%	38%	35%	36%	26%	13%	19%
MRI	59%	100%	75%	89%	47%	24%	26%	30%	48%	25%
Diagnostic mammogram/Dexa scan/Nuclear medicine	85%	89%	4%	15%	19%	14%	10%	12%	46%	32%
Chemotherapy	NA	100%	92%	67%	62%	80%	58%	80%	100%*	100%
Total days out % for(90% goal)	74%	85%	51.3%	54%	44.7%	44.3%	33%	45%	49%	55%
Measured # days out	3.5	4.5	3.7	3.8	2.9	2.7	1.7	2.6	2.3	2.0
Goal (= />5 days before days sales outstanding [DOS])	5	5	5	4	4	4	4	4	4	4
% of goal achieved	82.0%	95%	68%	72%	60%	59%	43%	65%	57.5%	43%

Source: nThrive. Used with permission.

and carried out multiple Lean Six Sigma exercises to make improvements.

Using Kaizen

The organization experienced a billing accuracy rate of 72 percent between November 2017 and January 2018, resulting in rework and in-case billing edits. Top priorities for the organization were to ensure billing productivity increases and clean claim rate improvements. Through its partnership with the business excellence team, leaders facilitated a Kaizen workshop, also known as a rapid improvement event (RIE), focusing on the current-state process.

An RIE is an initiative where employees at all levels of a company work together proactively to achieve regular, incremental improvements to the identified process. The result is a combination of the collective talents within an organization to create a powerful engine for improvement. The importance of building a culture where all

employees are actively engaged in suggesting and implementing improvements to the organization is embedded in the philosophy. In truly Lean organizations, it becomes a natural way of thinking for all. A typical RIE or Kaizen event is three to five days and includes these steps:

- > Identify a process that needs to be improved (based upon data and/or key performance indicators), set goals, and provide any necessary background.
- > Review the current state, identify areas for process improvement, brainstorm, and develop a plan for improvements.
- > Implement improvements.
- > Review progress and fix what does not work.
- > Report results, determine items for follow-up and monitor improved performance.

The two-day onsite event included the claims and billing solutions team as well as the director of the billing edits. During the

workshop, subject matter experts walked through the current state while simultaneously mapping out on a whiteboard what the current state looked like. This visual tool helps identify gaps and areas of opportunity as well as waste, rework, and handovers that otherwise would have been overlooked.

The group categorized issues and worked to identify their root causes. Toward the end of the second day, the team prioritized specific solutions that would drive billing productivity improvement.

After isolating some billing edits, automation was implemented to save time receiving the billing edits from their revenue cycle business partner, which helped clear up the billing backlog. A bridge routine—a computer code used to automate a process—was created to eliminate some of the edits coming back to staff, such as mismatched codes. Meanwhile, the revenue cycle business partner provider streamlined processes. The result: an improvement

in the system's billing accuracy rate from 72 percent to 78 percent.

For 15 minutes each day, teams discuss productivity metrics, analyze possible causes for high and low productivity, and develop action steps to improve.

Although this was a significant improvement, they still had not met the 90 percent billing accuracy goal. The health system was going through an electronic health record (EHR) software upgrade, and through the Kaizen workshop, leaders found the EHR was the last place to make these billing edits while improving billing accuracy rate to meet the goal.

Implementing Gemba or Waste Walks

During a complex project, it is common for those involved to lose sight of the detailed work that goes into the process they are trying to improve. Sometimes problems can be easily reduced to data reports and talking around a conference table, as opposed to going to the individuals where the problems reside. After recognizing this issue, process improvement leaders at Toyota developed what they call a Gemba Walk, a visual management tool taken directly from the Lean Philosophy tool set. The Gemba Walk is Japanese for "being where the action is."

The process involves posting the metrics that the teams are measuring on a board. For 15 minutes each day, they discuss the most important productivity metric(s), analyze the possible causes for high and low productivity, and then develop action steps for improvement. This process provides a cohesive team the means to expose the everyday issues and investigate why they are

occurring. This involves brainstorming and agreement on the actions needed to resolve the issues.

The Louisiana health system was struggling with financial clearances, days out to schedule patients for inpatient services, and point of service (POS) cash collections in the emergency department (ED). They used large Gemba whiteboards during twice daily stand-up team meetings led by team leads and supervisors.

Tracking days out began in November 2017. The baseline measurement was two days out of 40 percent of five-day goal. Gemba boards were installed and training completed in early December 2017. Immediate and sustained improvement was seen in the days out performance by the organization through April.

Daily huddles allowed the team to identify barriers in the work process and adjust scripting for patient questions.

The organization's outpatient team daily huddles and Gemba board provide a forum for communication, teamwork, and group problem solving. Huddles identified roadblocks to productivity that would slow the team down. These were sometimes quick fixes the team and supervisor could address. Other times, they identified larger issues, such as physician practice procedures, that required the administrative team to review and help craft solutions.

For example, use of Gemba boards and daily huddles beginning in December 2017 led to increased POS collections in the ED. Prior to incorporating a new model, the team was inconsistent in POS collections efforts. Daily huddles enabled the team to identify barriers to collections and adjust scripting for patient questions. The team

also was able to work with ED leaders to adjust the discharge process to help ensure patient access had reviewed insurance benefits and asked for payment before the patient left the department.

The team posted its highest collections for 2018 in January and had another strong month in February, achieving 90 percent of the five-day goal. Sustaining this performance proved to be a challenge because of staffing needs that impacted team performance. However, continuous use of the Gemba boards allowed the team to find ways to solve issues as they arose.

The health system was able to create a closed loop between the work, colleagues, and their supervisors to improve results and engagement. The process helped answer questions such as:

- > How did we do yesterday?
- > What went well?
- > What didn't?
- > How do we make it better?

Team members were able to improve productivity on days out and financial clearance as well as implement a continuous exercise that promotes collaboration, creativity, coaching, and thinking outside the box. The health system sees tremendous potential for using process improvement Kaizen events and Gemba walks in other areas of the organization.

Promoting Continuous Improvement

Business excellence and the Lean Six Sigma methodology teach teams how to choose and use the right tools to solve problems in any setting. In a continually changing healthcare industry, we are strongest when our processes are in a state of continuous improvement. •

Bruce Lancaster

is vice president of business excellence and performance improvement, nThrive (blancaster@nthrive.com).