



Multispecialty medical group Harvard Vanguard Medical Associates, an affiliate of Atrius Health, began its Lean journey in 2009. At that time, the Massachusetts healthcare market was changing rapidly: We were facing decreasing revenue, greater risk-sharing by providers and patients, and increasing demand for transparent quality, patient experience, and cost performance. Financial modeling showed that we could have a \$250 million gap between revenues and expenses if we did not change our delivery model. Thus, we had our burning platform.

Our executive team and board of trustees made a commitment to adopt a Lean management system, based on the Toyota production system, to create the transformational change required to succeed in the near future. For us, that meant we would:

- Create a strategy and plan to develop a Lean management system focused on developing leaders, clinicians, and staff
- Adopt a nine-step problem-solving approach based on scientific method to improve performance
- Improve processes by creating and following work standards developed by the people who do the work—trusting that ever-improving performance is achieved through people

These changes were a paradigm shift in how we managed our organization. From a healthcare delivery system standpoint, the shift meant moving away from delivering fragmented and episodic care to integrated and coordinated care; it meant focusing on value rather than volume; and it meant being system-focused rather than site and specialty-focused. From a management perspective, the shift meant focusing on coaching versus directing leaders, creating value for patients as patients define value, and developing processes that yield the best outcomes.

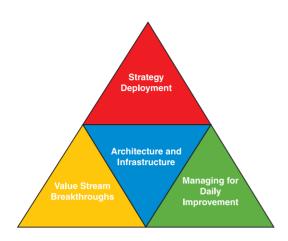
The System

We developed a Lean management system comprised of four equally important components: strategy development, breakthrough improvement, managing for daily improvement (MDI), and management system infrastructure (Figure 1).

1. Strategy Deployment

Process for defining direction: It begins with a 3- to 5-year strategy, breakthrough performance, and developing initiatives and metrics to measure success for sites and specialties. Doing so requires a dialogue between senior and middle management to ensure understand-

FIGURE 1 Lean Management System: Four Components



ing, scope, and alignment with the plan. In essence, this process creates organizational goals cascaded from the governing board to the staff providing patient care in a way that ties improvement work at all levels to organizational initiatives and metrics.

2. Breakthrough Improvement

Methodology for making significant change to processes and practices: It takes place in business units or specialties (value streams) and identifies a need for double-digit improvement to support the business (e.g., the strategy deployment plan). This component creates improved processes (standard work, or the current best known process) by the people who perform the work, adherence to new standard work by all involved, and the spread of improved processes and standard work to other practices.

Spreading these improvements across multiple locations is challenging and requires disciplined, ongoing dialogue with staff. Acknowledge up front that what is being implemented is currently the best-known way, and it is open to improvement. Openness by leaders cultivates a culture of continuous improvement.

3. Managing for Daily Improvement (MDI)

Process for daily management focused on achieving business goals through small, continuous improvements: MDI engages front-line staff in improving performance tied to strategic initiatives and metrics, using a problem solving method based on the scientific method, and involving all team members. Involved leaders create and sustain the most successful examples of MDI early in the transformation and take the skills they learned to their own practices.

In addition, we supplemented that learning with Lean coaches trained in our central Lean office and deployed to practice sites to coach leaders. It is fair to say that MDI is a daily activity across the organization that becomes more effective as we train and engage our leaders.

4. Management System Infrastructure

Tools and techniques used when making improvements to how work is done: Our management system infrastructure consists of a core team that coaches leaders and staff to adopt methodical problem solving, the central repository of knowledge and standards for deploying Lean principles, and the "school of improvement" for future leaders. This is, in essence, the central nervous system of the management system.

One Step at a Time

To leverage the full potential of a Lean management system, this integrated system needs to be built one component at a time and with purposeful integration, from technical knowledge to cultural transformation.

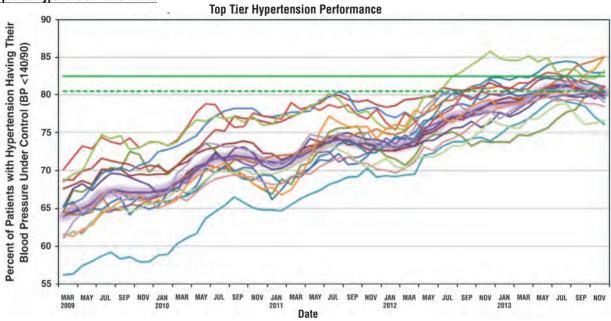
Our Lean journey started with two of the system components: building the infrastructure and value stream breakthrough activity. In the first two years, we held 60 week-long problem solving events, during which Lean consultants led groups of from 8 to 10 people through a nine-step problem solving process, helped teams build visual management tools to see performance post event, and coached teams to develop, teach, implement, and ensure adherence to standard work.

To begin, we selected value streams where we could realize double-digit improvement in quality, cost, and patient experience and ultimately enable them to grow, including endoscopy, MRI, and orthopedics. In addition, we provided classroom trainings where we taught Lean principles, tools, and techniques. Between events and trainings, we were able to "teach" 65 percent of our staff.

After two years, we introduced one practice to MDI as a pilot. As core components of MDI, that practice introduced daily team huddles to plan work for that day and include formal data analysis to improve performance. With the success of the pilot, we spread MDI to our 20 locations the next year.

Lastly, in 2012, we implemented strategy deployment, whereby organizational goals and metrics were cascaded down from the Board of Directors to the practice sites and specialties. In doing this, we created a concrete connection between senior leadership and front-line staff who provide care to our patients.

FIGURE 2 Improved Hypertension Performance



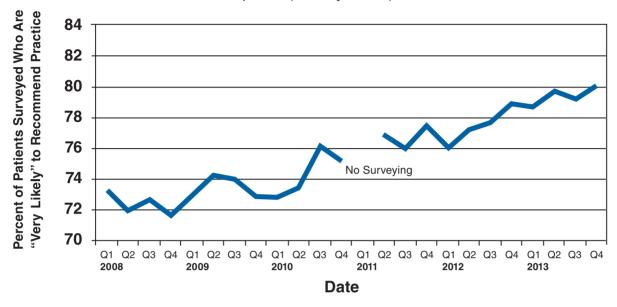
Harvard Vanguard Care Improvement System—Key Terms and Definitions

Term	Definition
Core Lean Principles	Core Lean principles are the beliefs that everyone in the organization shares.
A3 Thinking	A3 thinking is the basis for strategy deployment and problem solving at all levels in the organization. The A3 name comes from the metric paper size equal to 11"x17" and represents a way of thinking to solve problems. A3 thinking forces consensus building and unifies culture around a systematic, nine-step scientific method for problem solving.
Strategy Deployment	Strategy deployment cascades goals from the Board of Directors to front-line staff. It is a tool used by Senior Management, using A3 thinking to develop 3-year and 1-year strategic objectives necessary to achieve our vision and mission.
Managing for Daily Improvement (MDI)	MDI is a way to engage front-line staff in daily process improvement. It is a system for managing and sustaining continuous improvement initiatives through a combination of four components. 1. Standard work for all employees 2. Visual control boards 3. Daily huddles 4. Daily problem solving
Pareto Analysis	Pareto analysis is a data collection method that uncovers the root cause or causes of a problem. Pareto analysis uses the 80/20 rule: 20% of the causes are typically causing 80% of the problem. Using Pareto analysis prevents the organization from working on the wrong problem.
Standard Work	Standard work is a written description of the current "best known way" to do work, or an agreed-upon set of work procedures that effectively combines people, materials, and machines to maintain quality, efficiency, safety, and predictability. Work is described precisely in terms of cycle time, work in process, sequence, layout, and the inventory needed to conduct the activity.
Standard Work for Leaders	Standard work for leaders specifies the actions to be taken each day to focus on the processes in each leader's area of responsibility.

FIGURE 3. Patient Likelihood to Recommend

Likelihood to Recommend Practice

Top Box (% Very Good)



Noteworthy Outcomes

With the four component parts in place, we achieved noteworthy outcomes in quality, service, and cost.

Quality

Our organization, like many across the country, reports on quality metrics to third-party payers. We focused on hypertension as an opportunity to improve and impact a significant number of patients. By decreasing practice pattern variation with a standardized outreach process and plan of care (standard work), we increased the percentage of patients with hypertension having their blood pressure under control (BP <140/90) from 64 percent to 80 percent over four years (Figure 2). In addition, we decreased the range of high- and low-performing practices from a 14- to a 9-point spread, or a 36 percent decrease, which suggests that a high percentage of providers were following the standards.

Service

As measured by Press Ganey metrics, we experienced a significant increase in patients' willingness to recommend the practice (Figure 3). Starting in 2011, we implemented an organization-wide service excellence initiative supported and sustained through MDI.

The initiative introduced service standards for all staff, training on the standards, and auditing to see that the standards were being followed. These efforts led to an increase in the percentage of patients who are very likely to recommend the practice from 73.5 percent to 80.0 percent.

Cost

We implemented several breakthrough initiatives in 2011, 2012, and 2013 that contributed to a significant decrease in Total Medical Expenses (TME), including:

- Interdisciplinary team reviews of high-risk patient rosters, where clinicians identified opportunities for outreach or other patient interventions to prevent potential re-admissions
- Increased capacity to care for more patients by eliminating wasteful steps in current processes, particularly in orthopedics, MRI, and endoscopy
- Standards for the care of Medicare patients, which included collaboration with hospital partners. This work included developing and implementing standard work for:
 - Elder care roster review focusing on population management

- Decreasing avoidable admissions by collaboratively developing standard work with a component Medical Center to return patients to their primary physicians for care in an ambulatory setting
- Annual visits focused on the needs of the elder population
- Setting up a preferred vendor network for extended care facilities

In 2013 we saw a significant drop in TME as the synergy of these activities began to impact patient care.

Putting Lean into Action

Today, all four components of a Lean management system are in place, and this system is fast becoming the way we manage across the organization. Coaching by our Lean expert consultant, Simpler Consulting, enabled us to start and continue our business transformation.

We are shifting our culture to one of embracing obstacles as opportunities for betterment, and we are developing the capabilities of all staff to solve problems. What becomes clear with our early successes is that Lean is not just about tools and techniques; it's about developing people through coaching versus directing and developing people through an investment that takes years to begin and forever to perfect. Lean provides us with a framework which enables the people who care for patients to improve processes that ultimately make it easy for our patients to seek and get care. And that mission is what pulls us to work every day.

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