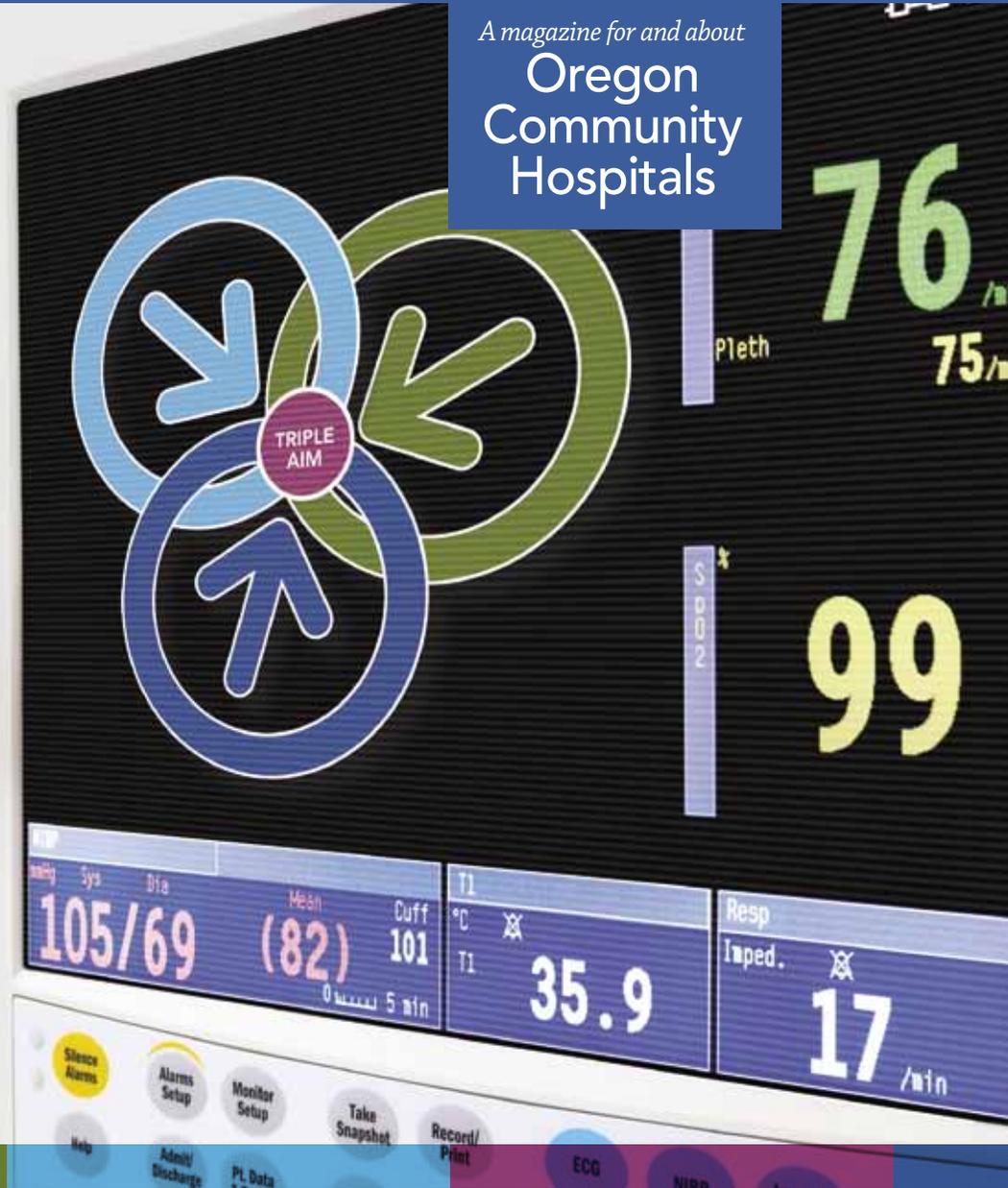


Hospital Voice

A magazine for and about Oregon Community Hospitals



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Community
Hospitals**

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HOW LEAN METHODS SUPPORT

By Mark Graban and
Mike Orzen



AND MINDSETS THE TRIPLE AIM

When the Institute for Health care Improvement introduced the Triple Aim in 2007, hospitals were already using a variety of approaches to drive improvements in patient care. Many health care organizations have discovered the application of Lean principles and tools to be a highly effective means towards the attainment of the Triple Aim.

Over the past 15 years, increasingly so over the past five, hospitals and health systems have been adopting methods and management principles from Lean, originally known as “Lean production,” based on the practices and philosophies of the Toyota Production System. While much attention has been given to the positive financial impact on many of these organizations – cost savings and growth – it should also be noted that hospitals have successfully used Lean methods to reduce patient waiting times and to improve patient safety and the quality of care. This should be no surprise, as Lean is at its core a very customer-centric and patient-focused management style.

“I’m very passionate about Lean and feel that the Triple Aim can’t be achieved without it.”

» Kelly Rinehart, RN, CNOR, RNFA, CPHRM

The Lean approach to health care management and improvement supports and complements the Triple Aim. A number of Oregon hospitals recognize this alignment and are taking action on both fronts.

“I’m very passionate about Lean and feel that the Triple Aim can’t be achieved without it,” said Kelly Rinehart, RN, CNOR, RNFA, CPHRM, quality project coordinator with OAHHS.

Lean arguably supports all three Triple Aim goals and aligns well with ongoing system improvement to fulfill the Triple Aim, along with many of the primary and secondary drivers.

Silverton Hospital Network (SHN) is in its fourth year of applying Lean learning and methods to the way it solves problems and continuously improves processes. Close to 200 staff members have been trained through an eight-session class that includes hands-on application, and close to \$3 million in benefits have been realized.

Sarah Fronza, director of chronic disease prevention and management at **SHN**, stated, “Lean is so much a part of who we are that we are constantly asking, ‘Is this the leanest way we can achieve our goals?’”

Improving the Health of the Population

Lean, from its roots in Toyota, is fundamentally focused on systems and management practices that provide “quality at the source” – the ideal of defect-free care. Lean is commonly seen as an approach for acute hospital care, as many improvements have been made in emergency and inpatient care – including reductions in waiting times, reductions in infection rates and falls, and reduced surgical mortality.

But population health involves more than episodes of inpatient care; the broader health system focuses on keeping patients healthy, not just reacting to injuries and illnesses. There is a strong parallel to Lean practices, if we compare how a Lean factory treats equipment with how the health care system treats human beings.

In the past, a traditional factory's focus was to keep a machine running at all costs – taking short-term production and profits at the expense of increased breakdowns, worsened quality and shorter machine life. Lean, through its Total Productive Maintenance (TPM) methodology, focused on proper machine maintenance at disciplined and consistent intervals, forgoing short-term production in the name of longer-term, lower-cost, consistent quality and increased machine lifespan. Working to keep equipment “healthy” proved to be the best long-term approach for Lean manufacturers.

Some leading American health care organizations at the forefront of Lean practice have moved beyond sickness care (fix the person) to population health (keep people healthy). Lean hospitals increasingly use



Lean health systems work to improve the handoffs between hospital care and primary care

“standardized work” and other Toyota-based methods to look across the “extended value stream,” a Lean way of describing the wider continuum of care.

Lean health systems work to improve the handoffs between hospital care and primary care – ensuring that patients have (and understand) their formal plan of care and that communication during handoffs are consistent, accurate and complete. Lean hospitals aim not just to reduce the length of stay, they actually work with the community to help reduce readmissions. It is expected that, under future payment reforms, reducing readmissions will lead to financial rewards for hospitals, whereas they might be financially penalized under fee-for-service payment systems.

In other examples, health systems are being more proactive, using Lean to drive the more continual management of chronic disease conditions and patient health. In one such example, primary care staff members make calls to patients, prompting them for their follow-up appointments at a prescribed frequency. Taking Lean concepts further, the office “levels loads” such calls throughout the week to

“A change in thinking continues to grow. For example, implementing managers have been far more critical in challenging the status quo.”

» Diane Dobbles, Lean Coordinator at SHN

improve access as well as minimize spikes or strain on the office schedule and on support areas, such as the lab. The number of calls made by each staff member is tracked on a visual board that is actively managed by the clinic. Getting ahead of schedule (a less leveled workload) is discouraged as much as falling behind would be. Another health system uses consistent, frequent, visual performance measures to compare how different physicians are managing their diabetic patients against their “standardized work” care plans.

Other health systems are leveraging Lean principles to inspire and design their new “Patient

Centered Medical Home” initiatives, focused on a whole-person orientation and for managing patient health in a proactive and integrated way.

In Oregon, SHN has a medical facility in Woodburn called Wellspring. Wellspring houses the network’s chronic disease management program, through which many of the Triple Aim goals are addressed. The clinics are also in the process of implementing a Medical Home model of care, which supports long-term community health. In the process of growing these particular services, the network has employed Lean methods and philosophies.

Diane Dobbles, lean coordinator at SHN, said, “A change in thinking continues to grow. For example, implementing managers have been far more critical in challenging the status quo. They are designing systems with the patient first and foremost in the equation. What is best for the patient is what is best for the community at large.”

Enhancing the Patient Experience

Patient experience is often thought of in terms of “patient satisfaction” – often relating to non-clinical aspects of a hospital stay. In terms of staff responsiveness, a growing number of Lean hospitals have freed up nurse and staff time by eliminating waste – improving systems to ensure the reliable availability of supplies, equipment and information in the right place at the right time.

Kanban whiteboards, a Lean scheduling technique, for materials management and bed tracking is an example of visual management systems which can increase the amount of time that nurses can be at the bedside. This means faster response to call lights (a key contributor to patient satisfaction) and reductions in falls, as patients don’t feel the need to try to get out of bed and to the toilet without assistance. Reducing waste frees up time for nurses and staff to provide for happier and safer patients.

Reducing falls and other patient safety incidents would correctly be given the highest priority in a Lean thinking organization. While traditional manufacturers focus primarily on cost, Lean places

primary focus on safety and quality, knowing that other important factors, such as on-time delivery and cost, will also improve as a consequence.

Paul O’Neill, as CEO of aluminum manufacturer Alcoa, made worker safety the top priority in the company. Lost days due to workplace injuries fell from one-third the U.S. average to just one-twentieth – and profits followed. O’Neill helped bring that same focus, this time on patient safety, to the Pittsburgh Regional Health Initiative and their Lean promotion and education efforts.

There are many documented cases of hospitals using Lean to improve core clinical and patient safety indicators, including:

- Reduced “door to balloon” time for emergency room patients, by using Lean methods to reduce delays and improve flow
- Reduced central line bloodstream infections (CLABSI) through the use and consistent management of standardized work along with “5S” principles (making standard kits of items available when and where needed)
- Reductions in ventilator-associated pneumonia through the use of visual management (making sure beds are kept at the correct angles)
- Improvements in hand hygiene compliance, with a resulting drop in infections
- Reductions in medication errors, through formal Lean mistake-proofing methodologies

Lean production organizations have little tolerance for variation and strive to create “zero-defect” processes which do not vary in quality, time and cost. While this aspirational goal is certainly appropriate, hospitals must be careful how they introduce this core Lean concept to staff.

“The concept of reducing variation to create a higher-quality product does not directly apply

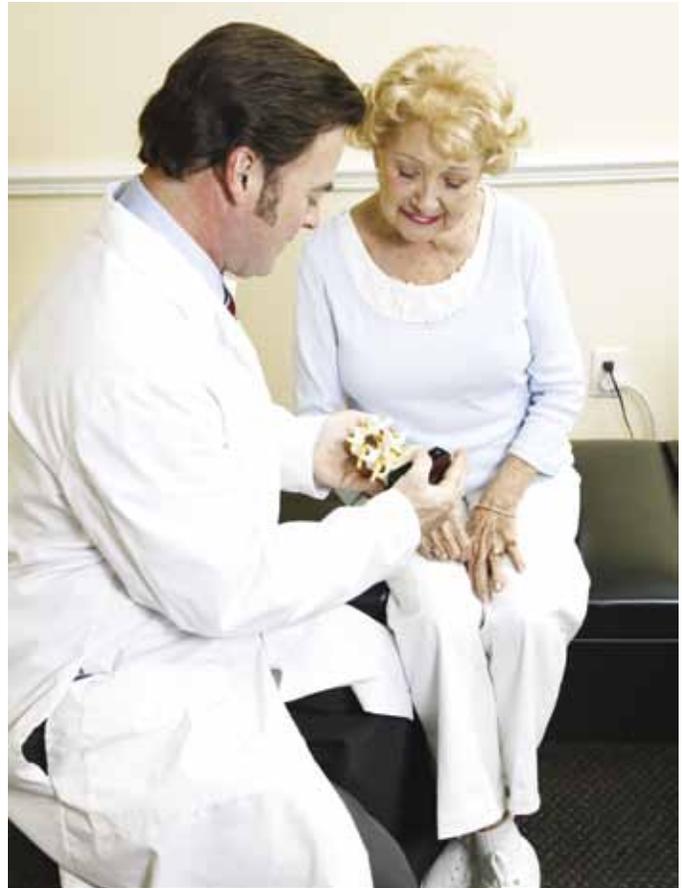
to health care processes when the ‘product’ we’re working with is an entirely variable patient,” warned Harold Peters, director of performance improvement at **PeaceHealth Oregon Region** in Eugene. “Health care Lean design has to be aware of and incorporate this reality: We are actually a repair shop. We have random demand and random diagnostics.”

In many instances, the dual Lean pillars of flow and quality go hand-in-hand, as reduced turnaround time and improved access lead to better clinical quality. Examples include 50 to 90 percent reductions in clinical laboratory turnaround times, which lead to more timely diagnosis of patients and fewer discharge delays.

Finally, the Lean concept of the “andon cord” is transferable from manufacturing to health care, to help ensure quality. In a Lean factory, every worker is allowed (obligated, really) to stop the line if they see a problem or a defect. This allows a team to work together to identify the root cause of the problem in a non-blaming way, allowing for the proactive prevention of future defects. Parallels to health care include the cultural norm that any participant in the operating room is encouraged to call a timeout if they see a problem or a potential problem.

Reduce or Control Per Capita Cost of Care

The Lean methodology provides specific definitions of “value” and “waste.” Simply put, “waste” is any work or cost that does not contribute to the patient’s diagnosis or care. It is often said that 35 to 50 percent of health care effort and spending can be characterized as waste – including care that is medically unnecessary or care that is provided inefficiently or with errors. While it might be considered bad news that there is so much waste in health care, the good news is that we have great opportunities for reducing costs without limiting patient care. Lean helps hospitals do more with less – providing more care while facing reduced payments and funding.



“Health care Lean design has to be aware of and incorporate this reality: We are actually a repair shop. We have random demand and random diagnostics.”

» Harold Peters, director of performance improvement, PeaceHealth Oregon Region

Lean also teaches us that the old assumed tradeoffs between cost and quality (or between cost, quality and access) no longer have to exist. Sure, in a traditional management approach, better quality led to increased costs – that is, when quality was attained through buying more expensive equipment or by adding more inspection steps into a process.

With Lean, better quality costs less, as we prevent problems instead of inspecting for problems after defects occur, and then correcting

the anomaly. Lean builds quality into the process, thereby eliminating the time, cost and complexity of rework. Improved flow and faster test results can prevent discharge delays, reducing the often-unreimbursed cost of a longer stay.

In the past, along with traditional “tradeoff” thinking, health care organizations have routinely thought that the solution to problems was more of everything – more people, more equipment and more space – all costing the hospitals more money. Many leading hospitals are using Lean to redesign and make better use of existing facilities – or building smaller facilities than were initially planned.

Another example of the application of Lean to improve the quality of patient care is the use of kanban to reduce wasteful inventory costs. Many hospitals experience a glut of medical supplies, instruments, medications and linens. When asked why they are hoarding, most people report they don’t trust the system to have the right inventory in the right amount at the right time. Kanban is a signaling device that triggers the flow of supplies and information through a process at a pace that matches its usage. Hospitals that have applied kanban have reported reductions of wasteful inventory by as much as 60 percent.

While many hospitals have used a few Lean tools to tweak their existing processes, others have fundamentally redesigned inpatient care using Lean principles. Innovations in team-based collaborative care, where a physician,

nurse and pharmacist work as a tightly-integrated team, have led to shorter lengths of stay, reduced errors and cost reductions of 20 to 30 percent.

More and more hospitals in Oregon are demonstrating how the application of Lean enables their organization to achieve the fulfillment of IHI’s Triple Aim. Lean provides an improvement framework and common language that is accessible to everyone in the organization. The application of Lean principles and tools provides a system of continuous improvement to move towards realization of the Triple Aim. 

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