



Leaning in to Succeed in Public Hospitals

As first responders for medical care, behavioral health, and other urgent community needs, California's public hospital systems serve a disproportionate share of uninsured people and patients with complex health care needs. These institutions are inherently vulnerable to the shifting needs of local, state, and federal forces. Public hospitals must balance their responsiveness to often divergent and emergent requirements with vigilant attention to their core mission.

Seeking an enduring way to thrive in an increasingly competitive marketplace, Zuckerberg San Francisco General Hospital (ZSFGH) and San Mateo Medical Center (SMMC) adopted Lean methodologies several years ago. Through the application of Lean principles, practices, and tools, these organizations have embedded the systems and infrastructure needed to stabilize and align resources to achieve strategic goals. When it comes to engaging the workforce in finding and eliminating waste and improving quality, safety, throughput, and financial health, these hospitals serve as examples of "what good looks like."

Most recently, the development of daily management systems and the standardization of work processes have been called out as game changers

for these organizations, helping eliminate complacency and harness the energy of frontline staff and managers.

Lean and Health Care

Lean has been written about extensively as a philosophy and management system embedded in a culture of continuous improvement and learning. Initially employed to transform Toyota, Lean includes tools such as value stream mapping, rapid cycles of improvement, mistake proofing, level loading, standard work and 5S methodologies, and setup reduction — all aimed at involving staff at every level in organizational change.

Denver Health began adopting Lean in 2005, making it one of the first hospital systems to do so.¹ Since then, more than 2,000 of its employees have been involved in Lean improvements. Denver Health teaches Lean methods to health care leaders and staff through its **Lean Academy**, which operates in collaboration with Healthcare Performance Partners.² On the East Coast, New York City Health + Hospitals (NYC H+H) adopted Lean in 2007, and has since deployed techniques to make ongoing improvements to patient care. In one example, it focused on surgical services at its **Jacobi Medical Center** and

achieved both a 22% increase in surgeries and an 11% reduction in turnaround time using value stream analysis and other Lean technologies.³ Nationally, the US Department of Veterans Affairs (VA) is implementing **Lean's Six Sigma practices** "to optimize the rate at which the VA can treat veterans, as well as boost the overall quality of the treatments and services."⁴ A **two-year study** by the Association of VA Surgeons into the effect of Lean processes at a VA medical center showed "significant and sustained" wait list reduction — from 33 days to 12 days — for patients waiting for elective general surgical procedures.⁵

More on Lean in Public Hospitals

The California Health Care Foundation has helped fund the establishment of Lean management systems in the state's public hospitals since 2009. See more at:

- ▶ *Better and Faster: How Safety-Net Providers Are Redesigning Care* (www.chcf.org, 2011)
- ▶ *Implementing Lean in a Safety-Net Clinic: A Case Study* (www.chcf.org, 2012)
- ▶ *The Lean Way: How California Hospitals Are Embedding a Culture of Improvement* (www.chcf.org, 2015)
- ▶ *Hospitals Seeking an Edge Turn to Unlikely Adviser: A Carmaker* (www.kqed.org, 2015)
- ▶ *S.F. General Following "Toyota Way" to Efficiency* (www.sfgate.com, 2013)

Zuckerberg San Francisco General Hospital and San Mateo Medical Center

Leaders at ZSFGH and SMMC described their improvement journeys as both long-term and transformational, acknowledging that it can take at least 10 to 15 years to fully reap the benefits of Lean.

ZSFGH CEO Susan Ehrlich, MD, and SMMC CEO Chester J. Kunnappilly, MD, said they are undeterred by a long incubation period. As Kunnappilly put it: "At eight years of experimentation, including five years of intense work, we are at best toddlers in the Lean world. This means we fall down a lot, and the idea is that the tools give us the resilience to get back up, keep improving, figure out what went wrong and how to revise. This is the area of learning for us."

The improvement tactics they deploy are modeled on a number of Lean principles: Identify value as defined by the customer, map the value stream in order to deeply understand each step in the process of creating value and eliminating waste, flow processes smoothly with tight connections between each step, establish *pull* that enables the customer to receive a product or service on demand, and seek perfection by continuing the cycle of improvement in the pursuit of zero defects.

ZSFGH and SMMC took similar approaches as they established new ways of managing and operating. They first initiated changes through mapping and making improvements in one, then two, and then more additional service areas over a period of several

years before they embarked on an organization-wide strategy deployment. They created systems for daily management that engage "everybody every day" in problem solving to demonstrate how each person in the hospital contributes to the achievement of strategic priorities. Their journey toward zero defects has been marked by periods of accelerating growth of knowledge and receptivity interspersed with periods that are slower to yield results. It was these slower periods, the executives noted, that often fomented innovation among leaders, managers, and line staff as they sought a return to the pace that yielded the most improvement.

Inspiration from Lean Health Care Experts

Ehrlich, who had been CEO of SMMC early in its Lean journey, reflected on the importance of getting all leaders on board with changes. In 2013, along with other public hospital executives, she visited ThedaCare, a Wisconsin-based integrated delivery system renowned for its leadership in applying Lean methodologies. The leaders spent a week learning how to build a management system using the techniques. Subsequently, coaches from Catalysis, a nonprofit education institute, provided daily management training onsite at ZSFGH and SMMC; they partnered with Rona Consulting Group, which provided ongoing coaching to embed and spread the system across the whole hospital.⁶

While in Wisconsin, Ehrlich heard a talk by John Toussaint, a Lean thought leader and CEO (now executive chairman) of Catalysis. Toussaint discussed the loss of middle managers in health care due to

insufficient support from executive leadership. He described this as the biggest mistake made in implementing Lean. As a result, said Ehrlich, she has been strongly focused on leadership development philosophy and tools. Specifically, she coaches ideal leader behaviors — what leaders do every day to support frontline staff and what executive staff do to support managers and supervisors. “This is about culture and behavior change so it takes a long time,” stressed Ehrlich.

ZSFGH and SMMC have maintained their commitment to Lean, including recent work on spreading the daily management system. At both institutions, this system started as an experiment with using team-based daily improvement as a way to engage everyone. Because improvement activities had been limited to too few people and too few ideas, the hospitals searched for a different approach.

“Stand-Ups” and Visibility Boards

Initiated in 2015, ZSFGH’s daily management system is now emerging across the hospital one unit or department at a time. The methodology includes daily improvement huddles by area teams at “visibility boards.” The huddles inform workers about how they did yesterday, prompts them through a process of identifying barriers to today’s work, and allows for problem solving to be initiated by frontline staff.

In addition, daily “stat” sheets provide opportunities for managers and supervisors to quickly but thoroughly review the issues and lessons of the day. The leaders note that this “engaged partnership” makes

everyone aware of the contributions made by the people and processes. Unit-based interdisciplinary leadership teams are learning to guide and coach teams toward daily problem solving that contributes to strategic targets. Aligning priorities across the hospital, huddle boards, stat sheets, and one-to-one interactions all contribute input to large visibility walls across the whole hospital.

Staff and leaders hold daily “stand-ups” at these walls to get a clear view of how the facility is doing overall, the challenges workers face, and how executives can enable staff to work at their highest level in the pursuit of organizational goals.

ZSFGH’s daily management system is now in place in perioperative services, an inpatient unit, the urgent care clinic, specialty clinics, and the emergency department. This year, ZSFGH is improving this system and rolling it out to additional areas. Ehrlich noted that this is a critical advancement as the system prepares for the launch of its enterprise-wide electronic health record in August 2019.

Status Sheets and Huddles

SMMC also successfully deployed the daily management system. Key elements of the system are in operation in the emergency department, operating room, inpatient psychiatry and medical/surgical units, and in nine outpatient clinics.

Visibility boards in SMMC’s executive suite have been used effectively for several years. These boards — essentially a wall panel for each major area

of improvement or strategic initiative — provide a structure for executive sponsors of each area of work to huddle with their improvement teams, usually a combination of managers and line staff. During the huddles, sponsors identify challenges that require interdepartmental or interdisciplinary collaboration and demonstrate how focused work in any one area builds toward specific strategic goals. In patient care areas, visibility boards include metrics that respond to daily, and sometimes hourly, changes. Huddles at these boards allow teams to make data-based decisions and understand at a glance if the trend is going in the right direction. These local boards, as is the case at ZSFGH, feed executive leader boards; they provide direct evidence of alignment to the institution’s “must-do, can’t-fail” strategic priorities.

Kunnappilly noted that two of the most successful elements of the daily management system at SMMC are status sheets and huddles, which have evolved over time to focus strongly on problem solving. The daily leadership and staff huddles occur across the hospital, providing an opportunity for frequent check-ins and reflection on a wide range of operational topics. The huddles are only 5 to 15 minutes long and follow a standard format where participants ask:

- ▶ What safety events have occurred and what are we doing to respond?
- ▶ How are we doing on patient experience?
- ▶ What flow problems do we anticipate today?
- ▶ What do we need to adjust?
- ▶ Who are we celebrating today?

The stat sheets are connected up and down the chain of command to make sure everyone is informed of the issues and responses. “The measure of success of these tools is the tremendous pull you see throughout the organization,” said Kunnappilly. “People observe what’s happening and working well in one unit, and realize they want to implement it in their unit.” He added that the daily huddle connects employees and facilitates the development of effective teams.

Standard Work and Maintaining Improvements

In 2012, SMMC — a community hospital with a network of neighborhood clinics — had a growing access problem. They determined the size of the problem by creating a list of patients waiting for services across the system and found that 5,000 people were in line. Over the next two years, as the institution focused sharply on improving access, the waiting list fell to 2,500 patients and then eventually to zero.

But this accomplishment was short-lived. Once a problem is fixed, they learned, it will re-emerge unless there is a buttress against the gravitational pull of the previous state. So SMMC leaders and staff made a deep commitment to maintaining improvements through the Lean methodology of standard work. This includes written directions for completing tasks that are developed by the people responsible for the task; clearly articulated expectations and

targets that are set and measured daily by staff; the empowerment of staff to continuously improve the standard work, identify problems, and create solutions; and regular auditing by managers.

What standard work offers is clarity, Kunnappilly stressed. If adherence to standard work was found to be falling, managers learned to coach teams to understand the cause of the breach and institute countermeasures to regain adherence. Standard work allowed for repeatable, consistent processes that improve safety, quality, and effectiveness. With the new management system in place, the SMMC waiting list began to fall again, he said. Although maintaining access remains a struggle due to increasing demand coupled with provider and staff vacancies, added Kunnappilly, standard work has enabled SMMC to prevent the waiting list from growing to its previous levels.

“We’ve had a lot of gains at SMMC, including reducing operating room cancellations and wait times for prescriptions,” Kunnappilly said. “In the clinics, we’ve made gains around improving preventative measures, such as adult immunizations and screening mammograms.” Noting that some of these efforts were supported by big-ticket, weeklong events, Kunnappilly cautioned that there can be a problem sustaining the change. “You need a process by which you are constantly going back to that standard work,” he added. “People have a tolerance for drift; you can drift for a little while before you’ll start seeing it in the data. By the time the data are worse, you have a bigger recovery effort than if you were monitoring the work itself.”

Another challenge, Kunnappilly noted, was correcting misapprehensions about standard work. “Initially, people, especially physicians, thought creating standard work meant that we were taking away their ability to be creative, to diagnose and treat using their expertise and training,” he said. He pointed out that standard work provides a baseline from which to improve, the means to produce reliable and consistent results, and frees everyone to use their creative skills to solve the more complex issues they experience every day.

ZSFGH leaders encountered similar experiences with standard work as a method for maintaining improvements such as shortened wait times and improved processes for surgery preparation. However, while Lean accelerates changes, just sustaining *the tools* doesn’t sustain the change, Ehrlich said. It is the disciplined adherence to standard work and the more recently adopted management system that produces consistency and visibility in the work.

“Standard work helps organizations address competing priorities,” Ehrlich said, by minimizing drift and demonstrating successes. “This continual ‘plan, do, check, act’ (PDCA) cycle of improvement provides evidence that persistence pays off and sets the groundwork for the next advance,” she said. “Standard work basically allows those using it to focus on the most important things — our *true north* goals and metrics.” Ehrlich pointed to one example of the results of standard work and PDCA successes: a sharp increase in patient load at ZSFGH’s urgent care clinic.

The Role of Leaders

Ehrlich and Kunnappilly also deploy their own “leader standard work,” or a routine of behaviors and activities that ensure they move through the work before them each day while leaving time for strategy and the people side of hospital leadership. In 2016, the ZSFGH executive team identified leader behaviors that support the principles of “align, enable, and improve” and that embody “the ZSFGH way.” The institution has continued to reinforce these behaviors by training all leaders in “A3 Thinking” (a structured approach to problem solving), using 360-degree surveys focused on Lean leader behaviors, and implementing leader standard work.

The SMMC and ZSFGH leaders stressed that Lean changes the role of leaders — the way they think and the way they act. This ultimately impacts organizational culture as skills and incentives are systematically moved through every level of staff. For example, managers are coached to develop their staff members to be problem solvers rather than to look to be rewarded for their own problem-solving ability. Executives regularly take “gemba walks” (*gemba* refers to the place where the work occurs) throughout the institution, taking the pulse of the hospital, asking questions, and learning firsthand what is working well and what is not.

Ehrlich acknowledged that Lean is a slow and methodical process. But, she said, the CEO sees that change is occurring both through the data generated daily and by observing the unit walls as she walks the hospital.

During their ongoing Lean journeys, both ZSFGH and SMMC have encountered major disruptions that might have derailed less robust efforts. The challenges included significant changes in the executive leadership teams at both institutions, ZSFGH’s move into a new hospital building, the imposition of new external regulatory requirements, funding volatility, and hiring delays. Despite these issues, improvement work has continued without significant pause for six years at ZSFGH and eight years at SMMC.

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About the Foundation

The California Health Care Foundation is dedicated to advancing meaningful, measurable improvements in the way the health care delivery system provides care to the people of California, particularly those with low incomes and those whose needs are not well served by the status quo. We work to ensure that people have access to the care they need, when they need it, at a price they can afford.

CHCF informs policymakers and industry leaders, invests in ideas and innovations, and connects with changemakers to create a more responsive, patient-centered health care system.

For more information, visit www.chcf.org.

Endnotes

1. Harris Meyer, “Life In The ‘Lean’ Lane: Performance Improvement at Denver Health,” *Health Affairs* 29, no. 11 (November 2010), www.healthaffairs.org.
2. “About Lean Academy,” Denver Health, www.denverhealth.org.
3. “Healthcare Business Insights: Patient Care Delivery,” New York City Health and Hospitals Corp., January 2017, www.nychealthandhospitals.org (PDF).
4. “VA Healthcare System Adopts Lean Six Sigma,” Health Care Daily Online, December 2015, www.healthcaredailyonline.com.
5. Nakul Valsangkar et al., “Effect of Lean Processes on Surgical Wait Times and Efficiency in a Tertiary Care Veterans Affairs Medical Center,” *JAMA Surgery* 152, no. 1 (2017): 42–47. doi:10.1001/jamasurg.2016.2808.
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