2014 Award for Outstanding Live CE Activity

Preparing A Multi-Disciplinary Team for a Process Improvement (PI) Project Launch: The University of Tennessee Designs Lean Processes Custom Course for Salinas Valley Memorial Healthcare System, CA

By Lea Anne Law, MS, CCMEP, Director, Healthcare Business Solutions, University of Tennessee, College of Business Administration

When west coast Salinas Valley Memorial Healthcare System sought to reduce admission times for patients coming through its Emergency Department, it asked The University of Tennessee for help. The result: A CME-certified custom-designed activity combined with team coaching, which enabled a select process improvement (PI) team to streamline admission procedures, reduce 17.4 staff hours per week, and eliminate 80 team phone calls per day.

Situation Analysis: Salinas Valley Memorial Healthcare System (SVMHS) is an integrated network of nationally-recognized health care programs, services, and facilities. At the core of the system is Salinas Valley Memorial Hospital (SVMH), a 269-bed acute-care facility located in Salinas, California. The emergency department (ED) treats 44,000 patients per year; of these, more than 10,000 patients are admitted for care.

As is true for many hospitals, SVMH's efforts to admit patients from the ED and route them to the appropriate treatment area were slowed by an unwieldy admission process. Conflicting or redundant orders from multiple points of coordination - the ED, hospitalists, specialists, nursing staff, case managers, administrative supervisors, and the registration desk - led to frequent rework and over-processing, which in turn led to long waits for beds. The lack of coordination also slowed the discharge and transfer process for patients already admitted, which often extended hospital stays longer in the hospital than was medically necessary. The end result? Higher costs and challenges for SVMH's central clinical stakeholders - patients and their families, physicians, nurses, and medical professional support staff.

SVMH partnered with the University of Tennessee College of Business Administration Center for Executive

Award for Outstanding Live CE Activity Recipients (L to R): LeaAnne Law, Keith Leitner, Laura Maples, Jennifer Russomanno. Not pictured: Jody Crane, Louella Freeman, Libby Gill, Jim Griffith, Charles Noon, Eric Solmonson.

Education to deliver a custom educational activity to prepare its frontline leaders and executive team to define and implement processes and Lean tools that would streamline the admission process to ensure timely and proper care and placement of its patients.

Educational Design: The effort that makes this live CME activity unique is the approach to the custom design. In order to best hone the content to SVMH needs, UT completed a pre-course 3-day initial observation in Salinas for benchmarking and multiple-day process planning in Knoxville, TN, prior to the Lean for Healthcare course delivery. The UT team recommended processes to establish real time Visual Situational Awareness and Visual Control of Flow and incorporated SVMH data into the course content. The live 5-day CME-certified course blended existing Lean for Healthcare course content with SMVH PI project goals and data gathered during observations. A three-phased, live hands-on simulation was intertwined with interactive presentations and small-group brainstorming throughout the week. Immediately following was a facilitated PI project designed by hospital teams. Ongoing follow-up by UT's faculty and staff assisted SVMH's team leaders as they designed, deployed, and measured the PI project.

UT advised SVMH that several conditions were imperative to successfully meet the organizational goals: 1) A significant number of the SVMH team be educated as a multi-disciplinary cohort, with each learner being a recognized leader in the organization; 2) All departments interacting with the ED must be represented by at least one leader; 3) The cohort must include frontline team members expected to design and deploy PI initiatives as well as executives who would be approving process changes, resource allocations, and financial expenditures; and 4) The

education activity should be immediately followed by the PI team planning for project deployment in order to maximize the learners' newly acquired Lean knowledge and skills.

Course Execution: SVMH in Salinas, California selected 50 departmental representatives from across service lines and the executive suite to participate in the weeklong Lean for Healthcare course at SVMH, Salinas, California, October 22-26, 2012. The course was certified for up to 33 CME hours through a joint sponsorship between the UT College of Business Administration Center for Executive Education in Knoxville, TN and the UT College of Medicine Graduate School of Medicine (Memphis).

The educational objectives (EO) for this activity were as follows:

1. Implement Lean theory in practice for processes designed to improve patient throughput;
2. Target areas for rapid improvement in a healthcare setting;
3. Identify ways to set the standards for flow improvement; and
4. Provide learners with processes and tools that will immediately translate to the workplace.

The course design included interactive presentations and a three-phased simulation that was used throughout the weeklong education in core lean principles and tools—including value stream mapping and patient flow. Participants also experienced small-group brainstorming sessions and team coaching. The cohort was divided into two 25-person simulation teams "working" in two different hospital emergency departments.

The simulation allowed participants to realize the power of Lean and effectively see how it works within a medical environment by mimicking an emergency room setting, complete with random arrivals of patients with varying levels of acuity. Participants were assigned various roles (doctors, nurses, receptionist, lab tech, x-ray tech, discharge, etc.) with role-specific tasks that involved timed encounters with patients. Each time the class returned to the simulation, they were expected to implement changes based upon their classroom learning to improve flow and layout and reduce non value-added steps. Through a simulation specific model that incorporates a statistical analysis of simulation components, the participants could visually see data and graphs illustrating improvements in patient throughput, medical errors, and the non-value added time spent with each patient.

Learners were provided with a take-home tool that could be used for the PI project planning and in the clinical setting to determine patient queuing expectations and analyze throughput maximization.

The CME-certified course was followed by a weeklong PI project aimed directly at the patient admission process. Although not certified for CME due to SVMH financial constraints, the project was facilitated by UT for 15 front-line SVMH team members from various service lines. The course successfully addressed the stated gaps and met the needs identified by the UT and SVMH. The PI project design took place October 28-November 1, 2013, the week following the course to allow a select team of project planners to immediately draw upon their education from the previous week.

Using New Knowledge to Design the PI Project: The educational activity provided SVMH multi-disciplinary medical professionals with baseline Lean thinking, which enabled a select PI Team to determine the needs for a project to increase patient throughput from the emergency department to an inpatient bed. The 15-member team, comprised of representatives from multiple service lines (Nursing, Admissions, Environmental Services, Transport, Physicians, Hospitalists, Case Management, and Records) honed the processes to meet the following clinical objectives (CO):

- Put each patient in the right bed in a timely fashion. This goal would require the case manager, the ED doctor, and the hospitalist to agree on the level of care before requesting a bed.
- Eliminate non-essential steps. "Non-essential" was defined as any action that did not move a patient forward in his or her care.
- Standardize the admission process so that the same sequence of actions would be performed every time for every patient, with no redundancies.
- Implement a visual management system. "Bed ahead" signs posted on doors would let physicians and staff members know at a glance where beds were available on the inpatient floors.

The multidisciplinary 15-member PI team spent one week designing and testing an improvement project to establish standard processes for admitting ED patients to reduce waste and time needed to move a patient to an inpatient bed once the admission order was written. The team designed a "Bed Ahead" system, in which inpatient departments can anticipate demand based on historical data and, thus, have a bed ready for the next available patient at all times. This lean-based system is the opposite of how a typical hospital process works, where the ED requests beds based strictly on current demand.

The SVMH PI team reduced the admissions process to 16 critical steps, starting with the ED doctor's decision to admit the patient and ending with the registration clerk entering the

admission information into the electronic health record. SVMH planned to support that process with visual management techniques and weekly bed meetings.

The new process test was implemented immediately, reducing the median wait time for each patient from ED admission to inpatient floor from 106 minutes to 89 minutes. Streamlined admission procedures saved 17.4 staff hours per week, 80 phone calls per day, and 1.3 miles of walking per day for the registration staff.

The time freed up though application of Lean processes was reallocated to patient-centered value-added activities, such as advance registration to shorten lines in the registration office.

Outcome measures over a six-month period were as follows:

- Reduced non-value added activities (activities that do not move the patient forward in their care) and eliminated non-value-added activities by 17.4 staff hours per week - 904.8 staff hours (117 staff days) per year.
- Streamlined admission screening processes and simplified language on forms reduced Admission Order errors and saved Case Manager time resources by 60 minutes per day.
- Eliminated 3.4 hours of staff time per week by using new Admission processes to problem-solve missing orders, identify the correct

level of care, and minimize interruptions to physicians revising orders retrospectively.

- Allowed more inpatient registrations using ED Registration staff, which saved the registration department an average of 1.3 miles of walking per day (20 minutes daily).
- Reduced Registration Department responsibilities in managing the newly designed process, called "Bed Tracker," which eliminated approximately 80 phone calls per day
- (4 calls per admission, 20 admissions on average per day).

Moving Forward—Lean PI as a Continuous Journey

Although improvements in assignment times were realized at SVMH in the early months of measurement, throughput data indicates wait times have gradually increased – nearly back to the baseline. Contributing factors to this increase include processes that have not been fully implemented and outstanding items, such as digital tablets that allow Supervisors to assign rooms electronically as they walk through the hospital and piloting of the printable nursing handoff tool. The team will work to implement these important tools.

In addition, Visual Cueing designed for the "Bed Ahead" process is not used consistently. A survey to determine why "Bed Ahead" signs were not used properly indicated 20% of the

time the staff simply forgot to post the sign and that 80% of the time there were no beds available. The most frequent barriers to expedient discharge included patient waiting for a ride, patients having had no discharge orders, or patients waiting for a diagnostic test or medication. This data is being submitted to the Discharge PI team to address.

Continuous education is needed for existing and new colleagues to maintain changes made. The PI team is currently working on processes to re-educate staff to the process.

Conclusion

The educational design met the healthcare organization's goals by:

- Establishing the baseline needs and data.
- Modifying existing content to meet the interdisciplinary team needs.
- Preparing a rapid Performance Improvement team to immediately develop and plan a project launch using the skills learned in the certified course.
- Providing tools created for and by the PI team.

The approach to educational design can be utilized by many healthcare organizations seeking to improve multidisciplinary team performance and quality of care.

To view a video produced by Salinas about the success of the education and the resulting project deployment, please visit:

http://www.tinyurl.com/PIresults