

Hospital Quality Improvement Initiative

Vermont Lean Healthcare Transformation Project

Aim

Gifford Medical Center has partnered with Lean Healthcare West (LHW) and the Process Strategies Group (PSG) of the Vermont Manufacturing Extension Center (VMEC) to introduce new process improvement techniques at Gifford Medical Center. The “Lean” processes and tools are being used to supplement other ongoing performance improvement projects at Gifford.

Time frame

Started in February of 2007 and ongoing

Description

Over the past 50-plus years, Toyota has become the most successful automobile manufacturer in the world. In that time frame, it has had an enviable record of introducing new technologies, improving employee satisfaction and eliminating waste. Its quality program is known as the Toyota Production System (TPS). Lean Healthcare West has studied TPS in detail and, through a government grant, adapted it to the health care industry. For the current government fiscal year, the Vermont Legislature allocated \$1 million to the Vermont State Colleges for workforce training and development. The partnership between LHW, VMEC and Gifford Medical Center has been funded as part of that project.

The Lean project at Gifford began in February with 20 members of Gifford’s staff participating in training. After seven weeks of training, 10 of the original 20 students took additional training to become coaches, who will act as mentors for future students and projects. Four of the original Gifford students were also trained as instructors. In April, Gifford started a second round of training. In this second round of training, the instructors are Gifford and VMEC personnel, being supported by an instructor from LHW.

In each round of training, students are asked to pick an area of interest or expertise (or both) and the students then implement changes in that area as part of their training. The students are supported by coaches and instructors along the way. In the first round of training, the following projects were started:

- Improve the process of a physician ordering lab and radiological exams, focusing on podiatry;
- Improve the flow of patients through surgery by working to improve the pre-operative documentation process;
- Improve efficiency of lunch preparation and delivery for nursing home and inpatients;

- Improve reservation process for equipment and rooms in the hospital;
- Improve communication in hiring process;
- Improve communication and technical issues regarding radiological exams;
- Improve current tele-radiography transcription system, including turnaround time;
- Improve tracking of work orders for facilities' maintenance requests; and
- Examine the contracts process and implement a system for tracking contracts.

Gifford intends to continue training employees in the use to the Lean process. Coaching and mentoring will be ongoing. A key goal for the project is long-term sustainability, with an increasing number of ongoing projects.

Goals and measures

There are seven forms of “waste” or “mudas” (the Japanese word for waste) defined in the Lean framework: confusion, motion/travel, waiting, processing, inventory, defects and overproduction. A Lean project can be focused on reducing any one or more of these mudas.

The ultimate goal of Lean is to deliver an “ideal” product. Ideal is defined as follows:

- Exactly what the patient needs – defect free;
- One by one, customized to each individual patient;
- On demand, exactly as requested;
- Immediate response to problems or changes;
- No waste; and
- Safe for patients, staff and clinicians: physically, emotionally and professionally.

Given the seven different mudas and the definition of ideal, the measurement of a Lean project's success can take many forms. It might mean the elimination of errors, such as medication errors. It might mean reduced waiting time or treatment time for a patient. It might mean greater resource efficiency in the hospital, ultimately increasing revenue and serving more patients per unit of time.

The measurements used to indicate success or failure for any Lean project will always be dependent on that project.

To date, early in Gifford's adoption of Lean techniques, no project has reached a point where a definitive measurement of improvement has been completed. Anecdotally, we have seen improvements that are discussed in the results section of this document.

Interventions

Every Lean project is an intervention of sorts, but not all of these are clinical interventions. Essentially, each project is an analysis of a current process, an analysis that provides a deep understanding of how a process truly works. After the analysis is done, problem areas are examined in great detail, looking for a root cause of the problem. After

the root cause has been determined, planning is undertaken to define an intervention – a new way of doing things – that will eliminate or reduce the root cause problems. The intervention is then tested as an experiment, to determine its efficacy. If the wastes are eliminated or reduced, the intervention is made permanent and the entire process can then start over, focusing on the new process the second time around.

Here are some example projects where interventions have either been designed or have been implemented and are currently being evaluated.

- Podiatry – Relocation of forms used for ordering outpatient services such as X-ray or lab tests
- Surgery – Modification of pre-op process to ensure that a valid history and physical (H&P) is on file for each scheduled patient
- Food Service – Changed food delivery mechanism for nursing home residents and inpatients
- Radiology transcription – A proposed solution has been designed to speed up this process.

This is a sampling of approximately 20 projects that have been started at Gifford since February.

Results

As mentioned above, all results to this point in time have been anecdotal and based on informal observations.

Podiatry patients have seen reduced waiting time when podiatrists need to order lab tests and radiological exams. This has allowed the patients to move quickly to their next point of care.

The intervention in surgery is still in an early phase. The intervention will hopefully lead to reduced delays for patients having surgery and to improved utilization of Gifford's two operating rooms. No data has been collected to date.

Inpatients and nursing home residents are receiving improved food service – warmer food served in the nursing home, and room-service meals made to order and delivered at the requested time to inpatients. These changes have reduced wasted food and decreased the amount of time between when a patient's food is put on a plate and when it is presented to the patient.

The radiology transcription solution requires the implementation of custom software and coordination between Gifford and another hospital. The proposed solution is still being evaluated based on cost considerations.

As these projects mature, more measurement will be undertaken to quantify the improvements that have been seen.

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