

Hospital: Good Samaritan Hospital
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Overview

Quality Issue

Good Samaritan Hospital (GSH) in Kearney, Nebraska implemented a continuous improvement project in 2008-2009 in their Emergency Department (ED) to improve the quality of patient care and patient satisfaction by reducing the wait time it took to be evaluated by the physician or allied health professional. Another issue that was identified was the time and steps it took for nurses to gather supplies which meant they were being pulled away from patients and physically exhausted by the end of their shift. Leaving documentation until the end of the shift due to “lack of time” was another quality issue.

Issue Identification & Importance to GSH and Patients

GSH became interested in using the LEAN continuous improvement method when we saw the impressive results gained by other hospitals. A steering committee was formed to prioritize projects suggested by Vice Presidents and Department Directors. Potential projects, including the Emergency Department, were submitted based upon their need to improve quality issues and productivity. The steering committee uses a prioritizer matrix to select projects. (See Attachment A below.)

The ED scored at the top of the project list because of its importance to patient safety and our customers. Approximately 40% of the hospital's acute admissions were first seen in the Emergency Department. Patient satisfaction of the ED was above the benchmark average prior to the project, however, we knew we could improve. Because our ED is very small with

annually growing patient volume, it is important to understand the amount of space needed and the best layout for patient rooms, staff and supplies as we look at future structural expansions. We also felt that we could have a positive impact on other processes, such as ancillary support processes in the lab and imaging, as well as surgery and inpatient nursing units, if we improved the processes in the ED. It was decided that this project had a high likelihood to succeed due to the willingness of the department's management to support change and sustain continuous improvement

Project Overview

Good Samaritan Hospital is a 228-bed tertiary care facility in south central Nebraska designated as a Level II Trauma Center and Accredited Chest Pain Center. The Emergency Department has 10 carts; one solely designated for trauma patients and, when we started our LEAN project, one was an Ear-Nose-Throat chair used for limited types of patients. Space in this ED is small with only 6,132 square feet. The number of patients seen per cart averaged 1,572. Patient visits grew by 25% from 2004 to 2009. With the baby boomer population growing in central Nebraska where 19 percent of the population is already over 55, we anticipate this increase in patient volume to continue. The dilemma the hospital faces is having enough capacity in the Emergency Room with a growing number of patients and no room to expand.

Good Samaritan's average length of stay for patients seen and admitted was 2 hours and for patients seen and released the average length of stay was 1 hour and 43 minutes. Even though the time in the ED was shorter than Press Ganey average of 4 hours and 5 minutes, due to the

limited number of carts, patients were often kept waiting in the “waiting” room or forced to lie on carts in the open hallway.

The average ED door-to-doctor time in 2008 was 24 minutes. Again, this is much shorter than the national average of over 60 minutes, but it was a patient dissatisfier and kept carts from turning over as fast as necessary. The department had no room for triage so patients were brought directly into a cart. For non-urgent patients, a nurse would ask the patient questions and reported to the physician when available. The physician would visit with the patient and order tests if necessary.

Supplies were kept in various cupboards and drawers throughout the ED. When the nursing staff wore pedometers to track their steps, the average number of miles walked by each nurse on a shift was 9 to 12 miles.

Documentation was done on paper by nurses and physicians dictated their notes. Too often the nurse did not complete the patient charts until the end of the 12 hour shift with many overtime hours being accumulated.

Phlebotomists were brought to the ED to draw blood and Radiology Techs came to do x-rays or take patients “next door” for other procedures. There was no standard form of communication for physicians, nurses, communication specialists or outside ancillary support staff to know what was ordered or had been completed for each patient.

METHODS

The Intervention Approach Implemented

LEAN was the process used to implement changes for better outcomes. LEAN focuses on the elimination of non-value added work to achieve better quality patient care and efficient use of resources. During this initial phase, the team observed the current state of the ED processes using time studies and spaghetti diagrams to show the movement of people, supplies, and patient records. The processes were analyzed to determine what was valuable to the patients and what efforts were a misuse of resources. A realistic future state for ED operations was developed. The opportunities to reaching these goals were prioritized. Three 1-week Kaizen events were planned and a timeline was set for the team to implement the changes necessary to reach their goals.

Timeframe for Intervention

Planning and approval for the ED project was done in February – May, 2008. The implementation of the project was completed in the months of June 2008 through March 2009. This ran longer than originally expected due to the implementation of a new charting system.

Stakeholders Involved

The key stakeholders for Good Samaritan Hospital's Emergency Department are the people living in the communities surrounding the facility, the Emergency Department physicians, the regional physicians serving the patients who visit the ED, and the staff in the ED and other parts of the hospital which provide services to ED patients or will continue the care for patients after they leave the ED.

GSH uses the HCAHPS survey for patient satisfaction information. The 2nd quarter 2008 HCAHPS scores were reviewed to gauge whether or not we were meeting patients' expectations about the care they received in the Emergency Department.

Patient Satisfaction Question	GSH Average Score	HCAHPS Benchmark
Time the doctor spent with the patient	3.38 out of 4.00	3.20/4.00
How quickly the staff evaluated the patient	3.52 out of 4.00	3.39/4.00
Staff worked together as a team	3.80 out of 4.00	3.64/4.00
Patient's perception of the best/worst emergency room	8.71 out of 10.00	8.03/10.00

Even though these scores were not perceived to be low, they supported the feeling that patients were unhappy about having to wait during their stay and were not as satisfied as possible about their visit.

Emergency department employees ranked their overall satisfaction on the August 2005 and December 2006 employee surveys at an average of 3.66 out of a possible 5.00. Key areas of employee dissatisfaction were 1) the lack of communication and understanding between the ED and inpatient unit staff and ancillary support staff, with inpatient unit staff, and with ancillary support staff; 2) cramped space; 3) the amount of walking and wasted time; and 4) supplies in too many places and running out of supplies.

Organizational Buy-In

In 2007, all of the hospital's senior management and 8 directors/managers attended a 2-day LEAN training at Avera McKennan Hospital in Sioux Falls, SD. A director was hired to lead the process improvement projects using the LEAN Six Sigma methodology. Senior management approves the LEAN projects. An executive sponsor assumes responsibility for

each LEAN project's goals and objectives. Facilities, Materials Management, and IT have adjusted to the quick timeline of the LEAN projects. Senior Management has supported the necessary time for staff to participate in the LEAN projects.

Indicators Used to Measure Results

The measures of performance used to demonstrate the improvement to patient care for the Emergency Department were 1) Patient satisfaction questions from HCAHPS survey; 2) Door to doctor time; 3) Average length of stay; 4) Percentage of patients leaving without being seen or leave without medical advice; 5) Maximum distance nurse traveled per shift; 6) Overall employee satisfaction; and 7) Expenses decreased.

RESULTS

A difficult cultural change for the emergency staff was to have the physicians and nurses do their initial evaluation of the patient together whenever possible as soon as the patient was brought back into the department. As a result, the average door to doc time has improved from 28 minutes to between 13 to 16 minutes. The average length of stay for both patients treated-admitted and treated-released has also decreased by 15-17 minutes.

To measure the effect of the doctor seeing/evaluating the patient sooner upon arrival, the staff seen working together and their overall satisfaction with the ED, the patient satisfaction survey scores are being monitored. The scores for all four of the questions used to measure the results of the process were better than the baseline 6 to 7 months of the 10 since the changes began. The time the doctor spent with the patient and the quickness in being evaluated both improved over 2.5% (the project target) in three of the months. The

percentage of patients who left the emergency department without being seen or left against medical advice stayed below 1%.

One of the most best performance improvements made during this process was the amount of miles walked by the nursing staff. The number of Good Samaritan's RNs over 45 years old has grown from 39.2% to 40.3% from August 2008 to August 2009. It is extremely important to retain these "wisdom" workers in healthcare. By decreasing the demand of walking on nurses, we hope to enable them to work longer and delay the nursing shortage we anticipate. Fortunately, by creating a central supply room, the nurses average miles walked per shift was reduced from 8 to 11 miles to 3 to 6 miles.

A second change that allowed nurses to stay with the patients was the creation of standardized bedside carts and procedure carts. With the bedside carts, nurses have the regularly used supplies they need right next to them and the cupboards that took up valuable space were removed. The procedure carts are always stocked and can be pulled into any room as needed. This eliminated the need to have specialty rooms therefore allowing staff to place patients in rooms to enhance the workflow. The ENT chair was replaced with a chair/bed allowing this room to be used for more patients.

The team of nurses, physicians, communication specialists, and EMT staff implemented a patient tracking system to enable all of the emergency services staff and ancillary staff the ability to communicate about the status of tests and timing. Physicians and nurses know which patients need to be seen, if the tests have been ordered, given and verified and if a patient is ready for discharge. This is being accomplished by using a manual entry white board with magnetized color-coded symbols. Through the audit process, the success of this

communication tool is measured and behaviors are corrected when needed. Changes to make this tool better are continual.

The communication specialist and the communication equipment for the emergency service ambulances and helicopters was moved out of the central nurses station to the adjoining room where patients are registered. This reduced the noise in the ED and allows the communication specialist to focus on the transport and patient information.

A new physician and nursing documentation system, the T-system, was acquired in March, 2009 to standardize the ED charting, simplify the charting for nurses and decrease the amount of time for documentation. Initial audits are in progress to see if staff are capturing the correct documentation for patients to ensure maximum billing and performance records. The new charting allowed nurses to complete charts faster. Overtime in the department was reduced by \$10,000 for the year of the LEAN implementation. Higher savings should be realized this fiscal year with the T-system in place for 12 months versus 3 months.

Supplies were not only centralized but were also better interfaced with the hospital's ordering system on a Kanban par level. Having supplies located in one central location and well labeled also allowed fellow team members, i.e. the Flight and EMS staff, to help with task assistance. In the past, they did not feel they could effectively help out in the ED.

Financially, after putting the Kanban system in place, on-hand inventory was reduced by \$7,000.

As a result of the attention paid to performance improvement and the implementation of the communication board, documentation system and central supplies, employee satisfaction improved from an overall average of 3.66 out of 5.00 to 3.81 out of 5.00. The survey was taken at the height of the change period and management was concerned that employee satisfaction would be lower rather than higher. We feel that the staff was not negative about the change because the LEAN method of improvement allows the staff to focus on the stakeholders' expectations and empowers them to make changes to meet these objectives.

LESSONS LEARNED

Reflection on what went well with the ED LEAN project reveals:

- Standardization of work processes is as necessary in healthcare as it is in manufacturing. We talk about “best practice” yet resist consistency when it comes to patient care. We have learned that expecting everyone to use the most efficient processes is better for the patients, staff and the organization's financial survival.
- We taught a diversified group about LEAN: the types of waste we would be trying to eliminate; why staff must be involved in change management; and, the importance of learning to continuously solve problems.
- We communicated the progress of the ED team often to middle and senior management, the hospital staff at Employee Forums, the board and our patient advocacy board; and,
- We had the willingness of the management team in the ED to expect their staff to try new work processes, including the physicians, as well as the support of the senior management team.

The opportunities we have to improve the LEAN process improvement process at Good Samaritan Hospital include:

- Communicating even more to all of the physicians that are effected by the processes;
- Implementing an on-going team approach to make the LEAN principles part of the culture;
- Celebrate our successes much more!

Sustainability of Intervention

Although it took us a few months, we do have an audit system in place to monitor and control the positive changes that took place in the Emergency Department. Currently, the managers of the physicians, nurses, communication specialists and emergency transport staff are observing the staff with the use of audit checklists. If members of the staff are choosing to ignore or drift away from the established standardized processes, the managers are working with the individuals to correct the behavior. If a process proves to be the problem, we are going to be continuing our LEAN process of brainstorming with the same principles of value-added/waste elimination and trying new practices.

Portability of Intervention

Since we have finished the primary LEAN project in the ED, our process improvement specialists have begun projects in Surgery Services, Medical Records and the Pharmacy. Whenever possible, we use staff from other LEAN projects to assist our new teams so our experience with LEAN is passed on from front-line workers to others. We also found that using the standardization and simplification techniques of LEAN is helping us build a new intern program with disabled high school students.

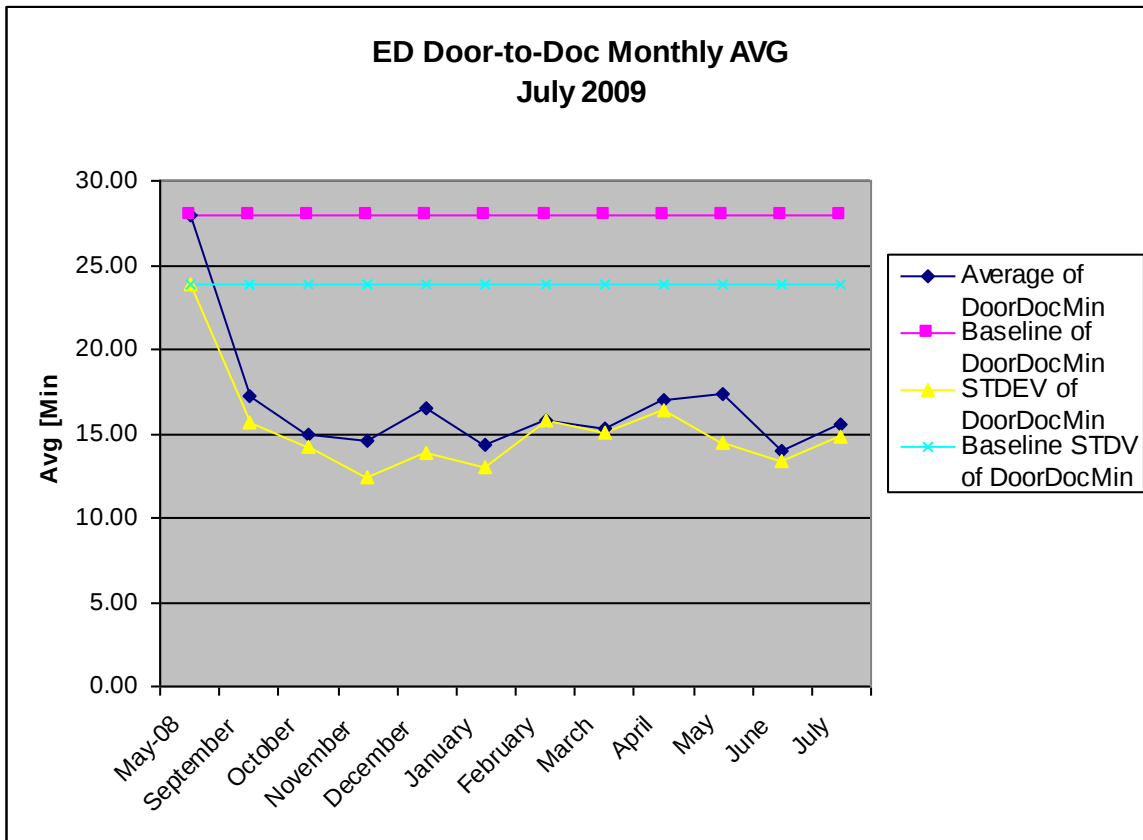
Attachment A: LEAN Prioritizer

Good Samaritan Hospital Project Prioritizer

Rate prospective projects in five categories, and use the combined score for an overall ranking.
Use estimates to set initial priorities and recalculate at a later date when accurate data are available.

Project	Importance to Customer Rate 1 to 5 High = 5 Low = 1		Cost to Implement Rate 1 to 5 High = 1 Low = 5		Feasibility (Likelihood of Success) Rate 1 to 5 High = 5 Low = 1		Cost Reduction Rate 1 to 5 High = 5 Low = 1		Importance to Strategic Plan (building also) Rate 1 to 5 High = 5 Low = 1		Leverage (Positive Impact On Other Processes) Rate 1 to 5 High = 5 Low = 1		Total Project Priority
Emergency	5	x	3	x	4	x	2	x	5	x	5	=	3000
Sterile Processing	5	x	2	x	4	x	4	x	4	x	4	=	2560
Radiology	3	x	3	x	5	x	2	x	4	x	5	=	1800
OR	5	x	1	x	3	x	4	x	5	x	5	=	1500
PCU	4	x	3	x	4	x	2	x	3	x	4	=	1152
Pharmacy	3	x	2	x	4	x	3	x	3	x	5	=	1080
FBC	3	x	4	x	4	x	2	x	2	x	2	=	384
HR	3	x	5	x	2	x	1	x	2	x	3	=	180

Attachment B: ED Door to Doctor Monthly Average Minutes



Attachment C: BEFORE and AFTER Pictures of the Emergency Department LEAN Project

BEFORE: Supplies stored in patient area



AFTER: Supplies in central storage room



BEFORE: Point of Care With Cupboards



AFTER: Point of Care With Cupboards Removed & Supply Cart



AFTER: New Communication Board

Room	Pt. Name	Nurse	Prov	Time	Nrs Active	Lab	Neuro	EXERCISE	CT/US	MRI	INFO	Admit Bed	Disch
1													
2													
3	Fred	DJ	RC	0712		0730	0730						
4													
5													
6	Sam	DJ	RC	0706		0730	0730						
7													
OB													
ENT	Douglas	DJ	RC	0714		0730	0730						
Hall 1													
Hall 2													
Waiting Rm: (Pending)													
Notes:													

Lab
X-ray
CT
Other

Ordered
Time Drawn or
Done
Completed
Results

Time
Adm Called
Bed Time
Recvd

Dismiss/Ready to disch
Needs
Cleared

AFTER: Laceration Cart

