

Lean Process to Improve Quality of Service in Neurosurgery Clinic

Objective

Using Lean processes to improve patient satisfaction, quality of care and patient cycle time at the University of New Mexico Hospital's neurosurgery outpatient clinic by developing a standardized process that provides a continuous flow of information throughout each patient visit.

Background

Lean management is a philosophy derived from the Toyota Production System that has been shown to make companies more efficient for decades. It has more recently been adapted to healthcare where it has been shown to be effective in improving patient care while lowering healthcare costs. The goal of Lean is to increase efficiency, decrease waste, and use empirical methods to differentiate value added and non-value activity. Value added activity is considered when an action occurs that is of value in the eyes of the customer or patient. Non-value added activity includes all the steps done that do not add value to the customer or patient.

At the University of New Mexico neurosurgery clinic, department leadership partnered up with the Lobo Quality Improvement Process department and established a core working group of representative faculty and staff to address inefficiencies in the clinic process. The team used Lean principles to look at clinic processes with the goal of implementing department-wide changes resulting in better patient care, increased productivity and capability, and improved patient and staff satisfaction.

Methods

A work group was created that included attending physicians, nurses, medical assistants, residents, and the Lobo Quality Improvement Process Team. This group used Lean's structured, methodical, and systematic approach to capture the baseline state of operations in the neurosurgery clinic. Over

four sessions this group analyzed the baseline data they collected and identified problems in patient scheduling, patient flow, and discharge. After identifying areas for improvement, interventions were taken to address the following issues between August and October 2012:

Scheduling of patient visit

- Created a referral scheduling check list to reduce errors in scheduling and avoid missing information.
- Identified areas for improved performance of medical assistance during scheduling process to decrease scheduling errors and the need of post-scheduling check of charts.
- Created a communication system between attending and clinic nurses for add-ons to schedule from PALS calls to reduce the number of walk-ins to our clinic.
- Reviewed schedules one-week prior to visit to allow for necessary rescheduling and/or completion of diagnostic studies if needed.
- Finalized schedules only after talking "live" to patient or caregiver.
- Scheduled post-op appointments in advance and organized a systematic communication system for hospital discharges to reduce double booking of patients.

Patient flow

- Improve check-in time and triage processes.
- Reduce in room wait time by decreasing unnecessary clinical information from the referral and limiting the number of patients seen by a resident prior to presenting to an attending physician.
- Computers in examining rooms logged into intranet at all times, with imaging access to be reviewed with patient in their room.

- Added clinic for nurse practitioners to see identified post-op patients and ED referrals.
- Created a system for early/late clinic arrivals in order to continue flow of schedule and still be able to provide timely services to these patients.
- Made all forms used by providers (i.e. consent forms) during patient visits easily accessible.
- Timely review of records and patients by residents and between residents and attending physicians.

Discharge process

- Started in room discharge to decrease waiting at front desk, have medical assistants available on the clinic floor, and have other staff helping out with discharge processes.

Results

Patient complaints were reduced significantly to only 1 complaint in September from an average of >5.

Additionally, there are preliminary results of clinic surveys suggesting improved employee satisfaction.

Figure 1: Neurosurgery patient cycle Time showing the areas of time reduction during patient visits

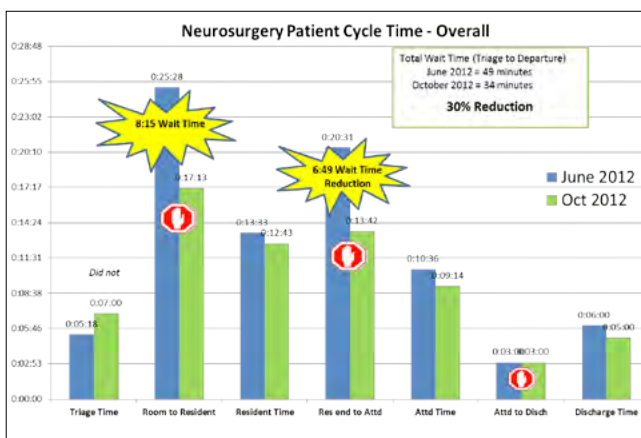


Figure 2: Waiting time after triage, demonstrate the time reduction during the resident portion of the visit

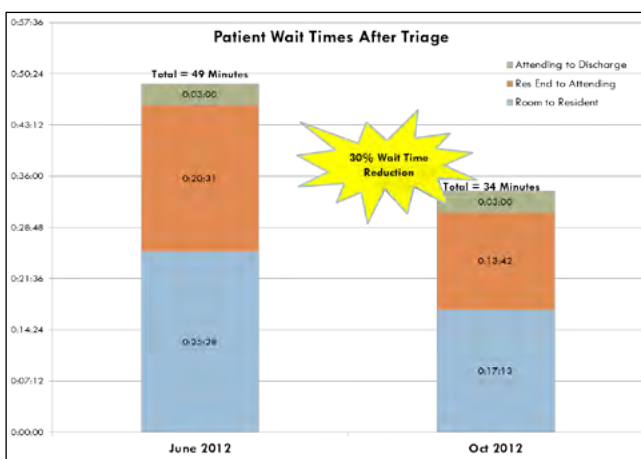


Figure 3: PALs walk-ins without prior notification to staff, showing the effectiveness of communication between the attendings and the clinic staff.



Figure 4: Number of overbooked appointments show the reduction of the overbooking of the clinics, this was reduced by adding time blocks to the nurse practitioners to evaluate patients.

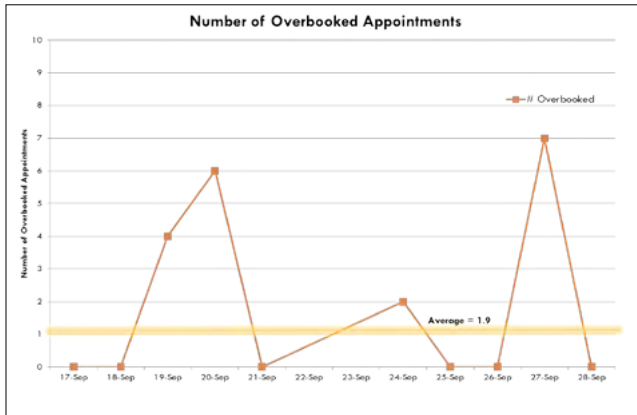
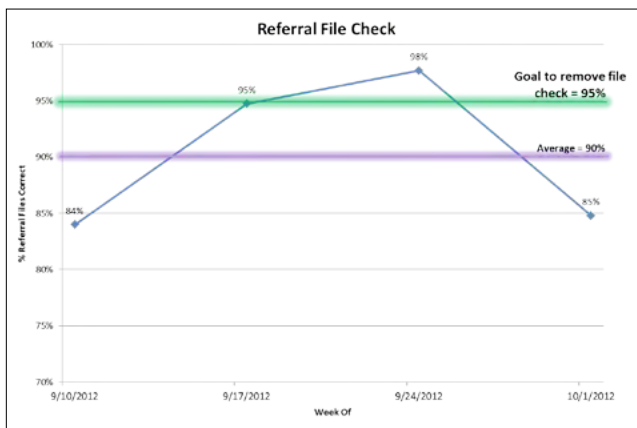


Figure 5: Referral file check with up to 98% of files with no errors, this allowed us to eliminate the need of file checks and freed an extra person for clinical activities.



Summary of results

With Lean processes we were able to reduce patient wait time by 30% (15 min/visit total) (Figures 1 and 2), reduce the number of patients arriving to clinic without any prior notification from 3 to 0 (Figure 3), reduce physician overbooking rate to an average of <2 patients per day compared to an average >6 per day prior to our intervention (Figure 4), and reduce the number of times patient's were missing documentation in referral files by implementation of a referral file check list (Figure 5).

A reduction in patient complaints and improved staff morale were seen in by tracking the number of patient complaints and in preliminary analysis of staff surveys (MA, nurses and providers).

Discussion

Lean processes have been shown to be effective in health care delivery through identifying and reducing non-value added activities. Here at the University of New Mexico, the Department of Neurosurgery was able to utilize the Lobo Quality Improvement Process Department to effectively identify areas of non-value added activity leading to decreased patient and staff satisfaction and higher costs. Areas of change were identified by looking at all steps in the process of caring for ambulatory patients: the scheduling of patients, the patient flow while in clinic and the discharge process of patients.

This lean project has helped decrease non-value added activity, and has increased communications across the neurosurgery department and ultimately improved the morale of the clinic team that led to the success of the project. This was achieved at no extra cost to the department. We continue to make improvements by adhering to the Lean principles of regular documentation and benchmarks while tweaking the processes on a quarterly basis.

Conclusions

The department of Neurosurgery conducted a Lean project in an effort to improve patient wait time and satisfaction by developing a standardized process through Lean processes. Through targeted changes supported by analysis of activities in scheduling, patient flow and patient discharge, the neurosurgery clinic can now focus on meeting the needs of patients resulting in improved patient care, improved patient and employee satisfaction, an increase in productivity and capability, and potential better financial performance. Our Lean project is now being used as a model for other medical clinics within the University. The ambulatory quality metrics of the initiative have shown improved value to the patient, and are being monitored and sustained.

PEDRO RAMIREZ, MD, ELIZABETH MULLER, RN AND MARTINA STIPLER, MD
Department of Neurosurgery,
University of New Mexico