Solution: Applying Lean Principles to Improve Patient Safety and Satisfaction in the ED

Organization: St. Joseph Medical Center
Primary Contact: Dave Norton, Senior Process Improvement Facilitator
E-mail: davidnorton@catholichealth.net
Phone: 410.337.1176

IDENTIFICATION:
Patient Safety was being adversely affected by our ED process cycle time (Length of Stay). This created time delays for walk-in patients to get to an EKG or Stroke Treatment. It also created backlogs and congestion of patients which occasionally led to ambulance diversions. These diversions created the possibility for delays in patient treatment as the ambulances were rerouted to other area hospitals. In August of 2008 the SJMC Executive Committee called the ED leadership together to review the facts:

- Our Front End processes were a tangle of confusing process steps that added to patient confusion and delay – measured in number of patient footsteps from door to bed.
- The length of stay for our patients was too long – leading to delays in treatment, ED congestion and patient and staff dissatisfaction – measured in minutes from door to discharge or admission.
- Our In Patient bed placement process was taking too long and creating opportunities for error – measured in minutes from Bed Request to Bed Occupied.
- The resulting impact on our ambulance diversion as reported by MIEMMS was unsatisfactory – measured in Red and Yellow divert minutes.

PROCESS:
The St. Joseph ED team decided to use lean principles, using a lean sensei as facilitator, to further analyze and improve this situation. Initial efforts focused on walking the ED processes, value stream mapping and identifying the key opportunities for improvement. After the size of the challenge became clear and the breadth of improvement opportunities recognized, it was decided that a normal kaizen team would not be sufficient to drive the improvements in a timely fashion.

A focused, multi-disciplined, yet part-time task team was created to attack this problem. It was created by the SJMC Executive Committee and was charged with a very clear challenge – to reduce the Length of Stay (LOS) of our ED patients by 25% in 100 days. While this stretch goal almost seemed impossible to the newly formed team, at the same time it galvanized them into action. Very quickly standing meetings were set up, weekly metrics on LOS were collected and posted in a quickly created ED war-room, previous ideas were reviewed, new ideas were created through various brainstorming techniques, ideas were prioritized and assigned to individuals or subteams for detailed analysis and implementation, if appropriate. Barriers to implementation were removed by the executive staff sponsors and the ideas grouped into four 25-day “buckets” to minimize communication and training challenges with the extensive ED staff of RNs, MDs, Techs, Clerks and Support Staff.
The key tools used in this phase were:

- **Standard Work** – we realized the impact of variance on our processes and resolved to identify and eliminate the sources of variance in our process steps.

- **Workplace Organization** – we realized that everything needed a place and everything needed to be in its place!

- **Flow** – we focused on flowing value to the patient, eliminating non-value added steps wherever possible.

- **Employee Involvement** – we realized the importance of involving the entire extended team in this transformation. Daily huddles focused on the status of the team and debugging implementation of ideas. Auditing of idea implementation became a shared responsibility between everyone.

- **Quality** – every rework, workaround, repeated test, missed call, etc were recognized as costly and time consuming and especially for the risks to patient and staff.

- **Visual Controls** – the team focused on making the patient flow visible via a number of physical and electronic changes in how the processes ran and how the data was recorded and presented to the staff.

**SOLUTION:**

The final solutions (over 100 specific ideas implemented) fell into six categories:

- **Bed Placement Process**
  - Moving patients upstairs more safely and quickly

- **RN Assessment Improvements**
  - Simplifying the documentation process

- **Advanced Protocols**
  - Moving everything we can up as early as possible; converting from virtual to visual

- **Communications, Response Time Improvements**
  - Eliminating the communication barriers and related delays

- **Patient Tracker Enhancements**
  - Knowing the latest status on the pt and their test results and making everything visible

The results, while not immediate, started to show up around day 50 of our 100 day project. Ultimately the team was able to:

- Patient walking in the triage process was reduced by 90%
- Average Length of Stay for all complaints in the ED was reduced by 26%
- Bed Placement cycle time was reduced by 75%
- Diversions were reduced by 95% for Red Divert and 50% for Yellow Divert

The team continues to audit the ideas to insure full implementation and to identify any fine tuning that may help continuously improve our processes.

While the results have been outstanding, the team has recognized a sad but energizing fact. The more waste you eliminate in a process, the more you uncover and the additional savings
opportunities become clearer. Additional ED kaizen teams have already been formed and are starting their improvement journey.