

Improving ED Flow through the UMLN II

St. Francis Hospital & Health Centers
Indianapolis, IN
200 plus beds, 27 ED beds
<http://www.stfrancishospitals.org/>

St. Francis Hospital & Health Centers is owned by the Sisters of St. Francis Health Services, Inc., a subsidiary of Catholic Health Midwest. It is located in central Indiana and includes two main campuses, Beech Grove (north campus) and Indianapolis (south campus). The newer south campus is a replacement hospital because the north campus will be closing once south campus construction is finished. Included in this construction is a new 60-bed ED that will open in 2011. The south campus is located in a fast growing area, leading to an increase in patients. This large increase in demand has created patient-flow challenges.

STEEEP PERFORMANCE IMPROVEMENT CHARACTERISTICS

Safe—The ED is better capturing patient information in the registration system the moment patients arrive, reducing potential errors.

Timely—ESI 3, 4 and 5 patients are seen by a physician or other provider in an ED or prompt-care bed faster.

Efficient—With standardized training, nurses are more efficiently triaging patients.

The Problem

St. Francis struggled getting non-emergent patients from the door to an ED bed in a timely manner. From December 2008 through February 2009, the average time from ED arrival to ED bed for ESI 3, 4 and 5 patients was 43 minutes.

The Solution

Under the Urgent Matters Collaborative, St. Francis implemented a quick registration and rapid triage process to improve patient flow for non-emergent patients.

Results

Between December 2009 and February 2010, the average ED-arrival-to-ED-bed time for ESI 3, 4 and 5 patients was 36 minutes, 7 minutes lower than the pre-implementation period and a statistically significant change ($p < .001$). Additionally, anecdotal evidence suggests this new process improved safety by accurately capturing patient information.

Background

A few years ago, hospital leadership invested a significant amount of resources to implementing a hospital-wide Lean/Six Sigma strategy. The COO hired a director of business transformation, who was charged with championing improvement initiatives throughout the hospital. Next, the

COO formulated three improvement goals--improving hospital-wide patient flow, streamlining ED patient flow and increasing patient satisfaction rates.

To meet these improvement goals, ED staff implemented kaizens and IHI-led projects in areas such as medication reconciliation, static queuing and simulation analysis. More recent Lean/Six Sigma projects have focused on lab and radiology-turnaround time, CT scan dosing, patient handoff reporting and inpatient bedding in hallways.

In this context, the ED director, an avid reader of the ED literature, decided to apply to participate in UMLN II. She believed the collaborative would help St. Francis build on recent success by requiring outside evaluation and reporting.

Improvement Strategies

Because of strong departmental nursing leadership and some successes with Lean/Six Sigma projects, ED leadership realized front-end improvements were attainable. At the south campus, ED-arrival-to-bed time was 43 minutes, as compared to 19 minutes at the north campus. In January 2009, ED leadership selected the combined strategies of quick registration and rapid triage as the projects to be implemented under the Urgent Matters collaborative at the south campus.

These projects were implemented simultaneously. They involve a nurse and registrar who greet arriving patients at the ED front desk. For quick registration, the nurse requests three or four essential demographic items from the patient, which the registrar enters into the computer to create a patient record. The nurse then assigns a chief complaint to the patient record (rapid triage). Non-emergent patients receive a standardized 3 to 5 minute comprehensive triage. One goal of these projects is to reduce the mean door-to-ED-bed time for ESI 3, 4 and 5 patients from 43 minutes. Another goal is to improve patient satisfaction scores by creating a standardized process for getting patients to the ED bed.

Implementation of the Quick Registration and Rapid Triage Strategies

In early spring of 2009, ED leadership charged an ED-led Lean/Six Sigma process improvement team with designing a more efficient rapid intake process. The team included staff and charge nurses, patient care coordinators (PCC), ED management, a nurse practitioner, ED technicians (staff assistants) and registration leaders. This team used value-stream mapping to analyze the current patient flow from door to bed. Next, the team, led by PCCs, created a future-state value stream map. Throughout the spring, the team used rapid cycle testing to move toward this ideal state. Changes were trialed at the south campus in three trials of 4, 8 and 12 hours, respectively. The ideal state was modified after each trial to incorporate lessons learned. Overall, five different versions of the process change were attempted through these events, two of which were presented to staff. At the end of June 2009, the full ED did a continuous run of the new triage system as developed and refined by the process improvement team.

In late spring of 2009, two nursing educators formed an education subcommittee. The subcommittee was responsible for developing an education plan about the process changes. This

plan included presentations at staff meetings, one-on-one education, online training, huddles, emails and red folders. These folders, which were available in the triage/registration area, contained educational material. The first version was thrown together quickly and was largely incomplete. The red folders were significantly refined to include lessons learned and have become a valuable resource to staff. During August and September 2009 staff meetings, presentations included an overview of the red folders, an update on staff education (75 percent of all nurses attended at least one educational session) and a review of the new triage process.

Concurrently, a significant number of nurses were trained in a standardized triage methodology. The ED director had previously been trained in this methodology, and another nurse leader was sent for train-the-trainer training in early 2009. These two trainers then trained ED staff nurses. Many RNs completed the 2-day training and passed the certification exam by January 2010. The goal is to have 80 percent of all nurses trained by fourth quarter 2010. This new in-house training standardizes the mechanical and cognitive concepts of the triage process and includes both rapid and comprehensive triage training. The next step for the department is to develop tools to evaluate the quality of triage nurses.

Significant challenges to implementation included:

- Resistance from registration leadership and staff;
- Difficulties with nursing-related process change;
- Insufficient technological infrastructure; and
- Difficulty capturing data that accurately captures improvement.

Coordination with registration was difficult due to a misalignment in reporting structure. Registration staff, unlike most non-physician staff, report to corporate leadership rather than ED leadership. Therefore, it was difficult to gain registration staff buy-in because they do not attend departmental staff meetings and non-management staff members were not part of the performance improvement team. At first, registration staff found it difficult to keep up with full registrations and point-of-care collections. In addition, staff were frustrated with lack of coverage for lunch or dinner breaks. Much education was needed to convince registration staff that there had not been any additional work created through the process change.

In addition, ED leadership has had to constantly work with nursing staff to tweak the strategies to successfully engrain the new processes into standard care. Flexibility and constant reeducation have been key to overcoming this challenge. Leadership believes that any non-compliance with the new process was due to an educational deficit, not to a lack of acceptance among staff. Most nurses like working with a registrar in rapid triage, and there have been only minor issues with the comprehensive triage nurse getting backed up, primarily when less experienced nurses are in comprehensive triage. To deal with this issue, a policy was created to encourage staff to request help in comprehensive triage when the queue includes more than three patients. Several ED staff members believe that some charge nurses have been more receptive to providing this help than have others.

The strategy's success was further complicated by the lack of workstations on wheels (WOWs) to complement the strategy of registration zoning. This strategy assigns a staff member to fully register patients in a specific "zone" of rooms. Due to a lack of WOWs, registration staff struggle

to fully register patients efficiently at bedside after the initial quick registration. Hospital leadership refused to approve the purchase of WOWs since the entire health system was moving toward standardized mobile units and because of a lack of available capital funds. However, the director of business transformation successfully lobbied for the purchase of two WOWs. The WOWs were not in place until February 2010, significantly holding back progress.

Although education was robust, staff believed that education could have been done sooner and better addressed culture change. Initial timetables did not allow for human delay and illness, and process changes took much longer than expected. While the ED performance improvement team made a lot of progress, ED leadership believes that sustaining the change will require changing the ED culture. ED leadership also believes that educational materials could have gone out earlier and that staff champions should have been identified from all nursing shifts.

ED leadership believes that the type of data collection needed for such improvement projects was more detailed than anticipated and that many hospitals without similar robust data infrastructures would struggle to accurately capture needed information. From a training perspective, the standardized triage training was perceived as essential as the new quick registration and rapid triage processes were much harder for nurses who had not been through this training.

Finally, previous success with other Lean/Six Sigma projects built momentum for the ED and created a belief that it was possible to reengineer nursing processes. On the hospital level, the director of business transformation was viewed as a vital champion in getting senior administrative support for the project. Having the CEO, CNO, and COO attend Urgent Matters collaborative meetings was also helpful to further solidify executive-level support.

Resources Needed for Implementation

The major resources required for the implementation of the interventions was staff time, the purchase of two workstations on wheels (\$16,000) and staff training in the standardized triage methodology (\$7,000 for training additional in-house trainers and \$80 for each nurse who received on-site training from a certified staff trainer). Selection, implementation and maintenance of the strategies required a considerable amount of staff time, as did meeting the data collection requirements of the collaborative.

Results and Continual Improvement

Between December 2009 and February 2010, the average time from ED-arrival-to-ED-bed for ESI 3, 4 and 5 patients was 36 minutes, 7 minutes lower than the pre-implementation period and a statistically significant change ($p < .001$).

Interviews with staff show several perceived benefits as a result of the strategy, including improvements in patient safety, patient satisfaction, and working relationships between nurses and registrars within the ED. While the lack of complete culture change and some misalignment of organizational accountability pose challenges going forward, there is a general consensus that the momentum built by these strategies will lead to additional successful process improvement initiatives in the near future for both the ED and the rest of the hospital. Going forward, the

leadership of the nurse manager and the PCCs is paramount to ensuring the sustainability of the strategies.