

Improving Processes Using Foundational Elements of Lean

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Background

In 2015 WakeMed committed to an organizational transformation intended to reshape the culture with a focus on making patients the top priority. Named the Wake Way 2 Excellence (WW2E), this journey included the adoption of a new strategic plan which was represented as a pyramid with the patient and family prominently placed at the top. The foundation was built upon the WW2E tenets and behaviors that would support the transformation effort:

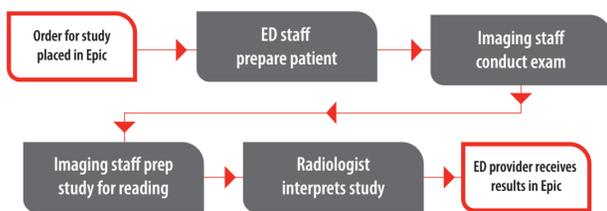
- **Behaviors:** Respect for People, Teamwork, Communication, and Commitment & Accountability.
- **Tenets (principles for process improvement based on lean principles):** Eliminate Waste, Create Just in Time Processes, Create Standard Work, and Create Efficient Flow.

The organization models the tenets through Rapid Process Improvement Workshops, week-long improvement events involving a multidisciplinary team to focus on a process and conduct PDSA cycles for improvement. Changes made during the week are monitored for 30, 60, and 90 days.

Eliminate Waste

Improving Imaging Turnaround Times for ED patients

Aim: Raleigh Campus Adult Emergency Department had a lengthy lead time for CT scans, resulting in patient/provider/staff dissatisfaction, increased length of stay, and reduced patient throughput. The lead time for a CT was 219 minutes with a target of 110 minutes.



Results: Pre-event, mixing and administering of oral CT contrast was done by the CT tech responsible for operating the scanner. As an improvement, nurses began mixing and administering oral contrast, freeing up CT techs to scan patients. Additionally, pre-event, when a trauma alert was called, a CT scanner was held for the pending patient, however, if the trauma was downgraded, CT staff were not routinely notified. This left the scanner unnecessarily idle, causing delays for other patients. A prompt was added in Epic to notify CT staff of trauma downgrades which helped eliminate the waste of patients and staff waiting and reduced the time equipment was idle. The total lead time for CT was reduced to 171 minutes, a 44% improvement to target.

Create Standard Work

Improving Door to Troponin Turnaround Time

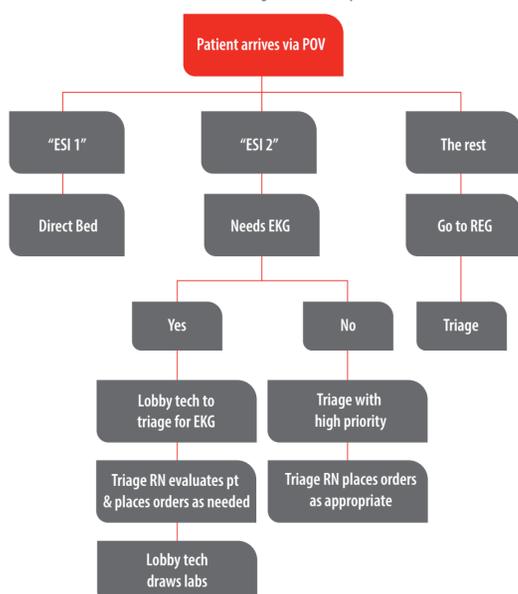
Aim: The Cary Emergency Department runs a lab test for troponin proteins on patients who present to the ED with chest pain or similar complaints. The baseline for ED arrival to troponins reported in Epic was about 82 minutes with a goal of 60 minutes.

Results: Event participants determined that standard work was needed to create one efficient process to identify patients with heart attack symptoms and accelerate their troponin labs.

A triage nurse was placed at the front of the ED to expedite EKG and lab work for those with heart attack symptoms. Standard work was created to place "STAT Troponin" stickers on ED labs to provide a visual cue to the lab staff. These improvements led to a 67 minute turnaround time, a 68.2% improvement to target.

Nurse First Flowsheet

(with Nurse First, 1 Triage RN and Lobby Tech)



Create Just in Time Processes

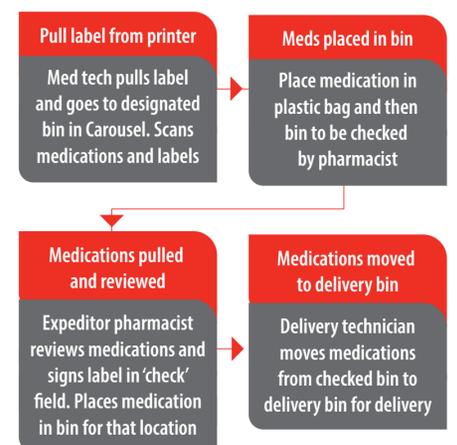
Improving the Medication Delivery Process

Aim: Medication deliveries from the Raleigh Campus Central Pharmacy are sometimes delayed, misplaced, delivered to the wrong location, or sent in error. The baseline lead time for preparing medications for delivery was 164 minutes and the delivery process was 69 minutes. The goal was to create a just in time process with a 25% reduction in lead time.

Results: A lack of standard workflow for pulling and checking medications, led to excessive motion and long lead times for preparing the medication delivery cart. Establishing a new workflow resulted in a 127% improvement to target.

Additionally, pre-event, nurses were placing returned meds in a generic bin for pharmacy techs to return to specific PYXIS bins periodically. Standard work was created so nurses would return medications to correct bins, making them readily available.

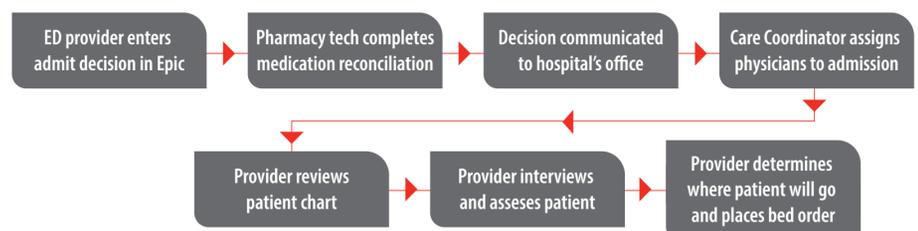
Pharmacy Med Pull Workflow



Create Efficient Flow

Improving Admission Times for ED Patients

Aim: The Raleigh Adult Emergency Department experiences high Left Without Being Seen (LWBS) rates, ED length of stay times, and patient/staff/physician dissatisfaction. The goal was to create an efficient flow for patients being transferred from the ED to the hospitalist service upon admission. The hospitalist admission lead time was 51 minutes with a goal of 38 minutes.



Results: To improve communication between the ED and hospitalists, a shared patient list showing pending admissions was created in Epic. Without a hospitalist admission coordinator at night there were delays in the admission process because calls and pages were put on hold when the hospitalist was with a patient. An overnight admissions coordinator was hired to manage the workflow. Creating a more efficient flow improved the lead time to 44 minutes, a 54% improvement to target.

Summary

The WW2E behaviors and tenets serve as the foundation of the WakeMed strategic plan and help drive a focus on ensuring patients and their families are the top priority. These improvement events serve as examples that lean thinking paired with key staff behaviors can improve processes, impact patient care, and enrich the patient experience.