

**Authors**

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**Background**

With increasing volumes and heightening pressures to care for patients within finite real estate within the Emergency Department setting, any opportunities to decrease throughput bottlenecks impacting the patient length of stay is of utmost importance. One such opportunity area within the Houston Methodist Hospital Emergency Department is affiliated with CT throughput times in which delays contribute to longer patient overall stays and proliferates overcrowding issues that have the potential of impacting quality, revenue generation, patient satisfaction, and throughput issues.

**Objective**

The specific aim of this initiative was to decrease throughput time for all ED patients requiring a CT scan, which is defined as when the order is placed by the provider to when the results are made available. The target was to reduce the CT throughput time by 10% from the average three month pre-implementation rate of 221 minutes.

**Planning/Research Methods**

A multidisciplinary team of providers, nurses, patient care assistants, CT technicians and management was assembled into a steering committee to plan over the course of the three months leading up to the change. Key subject matter experts from IT were also included on critical process flows that were applicable to their respective area. Research of best practices was conducted by reviewing published articles in order to understand what could potentially be replicated within the given environment. In addition, a time and motion study was conducted to study the flow of patients to and from the area along with the tasks completed between order submittal and results posting.

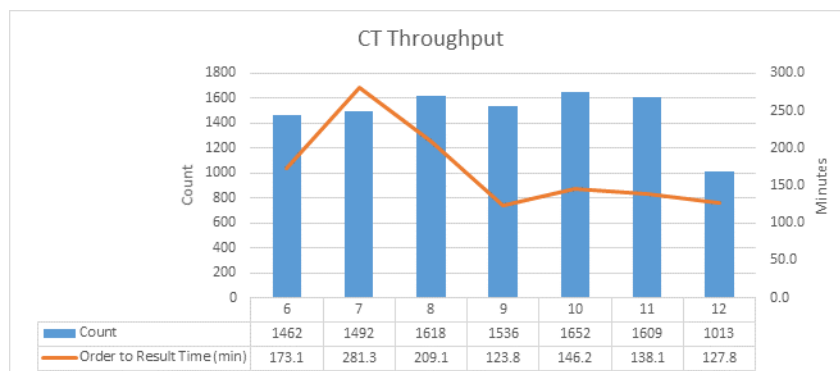
**Implementation Methods**

This undertaking represented substantial change to the Emergency Department, complete with new technologies, new roles and responsibilities and new process flows. Project management and change management efforts were married to address with tools such as process maps, time and motion studies and continual feedback loops. Through these endeavors, the following improvements were made:

- New technologies implemented including walkie talkies and EPIC/IT enhancements
- Additional CT technician added to second shift
- Clinical team roles clearly defined and communicated for understanding and ownership
- Communications pathways were established to identify personal throughput times and overall impact by month

**Results**

June through August average CT throughput time baseline was 221 minutes. Post Implementation, the CT throughput time was reduced by 39% to 134 minutes on average. In addition, the ED LOS for discharge patients was reduced by 3% and the ED LOS for admitted patients was reduced by 1%. Overall ED patient satisfaction increase by over a point as well.



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