

A Multidisciplinary Quality Improvement Project to Address Delays in CT Imaging and Thrombolytic Treatment in Acute Stroke Patients

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Background and Purpose

Stroke is the third major cause of death and the leading cause of long term disability in the United States. Rapid entry into the Emergency Medical System, hospital transport, and Emergency Department (ED) and neurology evaluations is essential in assessing patient eligibility for thrombolytic therapy. Difficulty in obtaining CT brain imaging frequently result in treatment delays. The purpose of this project was to measure CT scan turnaround time delays and evaluate how shortening CT turnaround times significantly decreases the overall evaluation period of the patient.



Methods

Directed by the LEAN methodology, a multidisciplinary project team was formed to develop and measure aspects of the current procedure, analyze data, investigate and identify the causes of any delays and form action plans to improve and hardwire a new process. CT scan turnaround times were defined and measured as the total time in minutes from when the CT was ordered to when the Radiologist interpreted the scan as evidenced by the posting of the final report in the electronic medical record. We included in the analysis CT stroke brain scans ordered from the ED along with those ordered for in-house stroke codes. All door to IV rt-PA times were included as part of the review. The data was collected and analyzed to identify delays and quantify their causes.

Results

Upon reviewing and analyzing the four months of data, the project team members noted that the median CT brain stroke turnaround times for 16 patients was 28 minutes with 64% of patients receiving IV rt-PA within 60 minutes of arrival. CT delay variances included patient registration delays, a variation in the language used when requesting a CT stroke brain, a lack of uniform notification of CT personal of a stroke code, and in-house transportation delays. Action plans were developed to address rapid imaging in unregistered patients, differentiating stroke protocol stat CTs from non stroke stat CTs and accelerating transportation. This multidisciplinary quality improvement project resulted in a decrease in the median CT brain stroke turnaround time for 20 patients to 21 minutes with 86% of the patients receiving IV rt-PA within 60 minutes after triage.

Conclusions

The project team was able to identify barriers, recommend process changes and ensure the implementation of change within the institution. Data collection and process revision is ongoing.

