

Stroke Imaging Performance Assessment at a Community-based Hospital

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Introduction: An efficient stroke program plays a crucial role in timely diagnosis and management of acute stroke cases. Our hospital has endorsed performance targets for critical steps in the stroke activation and management pathway. This is a quality improvement initiative aimed to identify bottleneck events within the current code stroke pathway that led to delays in image acquisition/interpretation and challenge the achievement of set benchmark times.

Methods: We constructed a process map outlining key steps in the code stroke pathway relevant to image acquisition and interpretation, aligning with the stroke target benchmark times. A total of 241 stroke cases documented between 1/1/2022 and 6/1/2022 were reviewed. Activity timestamp was utilized to calculate various time intervals and assess compliance with the specified benchmark times set by our institution's stroke program.

Results: Arrival to stroke activation was the most frequently missed benchmark (miss rate of 45.8%) with wide ranging arrival to code stroke activation time (mean of 18.9 ± 22.2 minutes). The next frequently missed benchmarks were arrival to noncontrast head computed tomography (NCT) read time (miss rate of 25.4%), and arrival to first CT angiogram (CTA) slice acquisition time (miss rate of 21.1%), both set at under 45 minutes. The fourth frequently missed benchmark was observed in order to CTA read time, where 19.0% of cases missed the goal time of under 60 minutes; this benchmark encompasses the time interval between the first NCT slice to the subsequent first CTA slice, a variable time interval under the radiology department's control that averaged 9.1 ± 18.6 minutes.

Conclusions: Although arrival to NCT read time and arrival to first CTA slice acquisition times were among the greatest missed time benchmarks, these were likely secondary to inconsistencies in arrival to code stroke activation time. One of the time intervals in the fourth frequently missed benchmark of order to CTA read time was under departmental control. Addressing and enhancing the consistency of this specific time interval could potentially contribute to an overall improvement in the time interval from ordering the CTA to the CTA being read.