**Presentation Title**: Improving Door to Needle Time in the Treatment of Acute Ischemic Stroke

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**Background Information:** Early administration of thrombolysis in acute ischemic stroke patients is associated with a lower risk of in-hospital mortality and hemorrhagic transformation as well as better functional outcomes. Historically, quality measures for the University of Virginia Health Comprehensive Stroke Center (UVAH-CSC) have demonstrated a consistent door to needle time that exceeds the American Heart Association/American Stroke Association national standard of under 40 minutes. Many factors can lead to delays in thrombolytic administration and previous attempts to mitigate these delays have proven unsuccessful. In May 2021, the UVAH-CSC transitioned to the use of tenecteplase (TNK) for thrombolytic therapy, replacing alteplase as the drug of choice.

**Objective:**  Between May 25, 2021 and November 1, 2021, patients receiving thrombolysis for the treatment of acute ischemic stroke at the UVA Comprehensive Stroke Center experienced a 52-minute mean hospital door to needle time. Our aim was to decrease the door to needle time by more than 12 minutes within 3 months to meet the AHA/ASA national standard of less than 40 minutes and improve clinical outcomes in this patient population.

**Methods:** This quality improvement project included all adult patients that presented to the Emergency Department and received thrombolysis for the treatment of acute ischemic stroke. Baseline data was collected on patients between May 25, 2021 and November 1, 2021. Through development of a process map, fishbone diagram, pareto chart, and priority matrix, delays in TNK administration were identified. Some of these delays included the time from CT read to TNK order, the time between TNK ordered and administered, and the time between patient arrival and goal systolic blood pressure (SBP) < 185 mmHg, among others. An interdisciplinary team was utilized to create an intervention targeting early antihypertensive administration as the Plan-Do-Study-Act (PDSA) cycle 1. Post-intervention data was collected from February 14, 2022 to April 30, 2022 and analyzed.

**Results:**

The pre-intervention mean door to needle time was 52 minutes compared to 40 minutes post-intervention. The process measure of door to SBP < 185 mmHg had a median pre-intervention time of 46 minutes. There were no patients who required administration of antihypertensive medications to achieve goal SBP prior to TNK administration in the three months after our intervention was initiated.

**Conclusion:**

Despite having no patients enrolled post-intervention to analyze our process measure, our general measure is trending towards improvement and nearly meets our goal door to needle time. Due to the complexity of patients who presented with an acute ischemic stroke and received thrombolysis, it is unclear what contributed to this shift. Potential factors that may have influenced the shift include more open conversations regarding the institution’s door to needle time, greater awareness and use of the pre-alert process, and the recent addition of two new attending physicians who have been critical in evaluating this data. Moving forward, our next steps include ongoing data collection to continue trending the door to needle time and the role of early blood pressure management.