**The Purpose**

The purpose of this poster is to show how the emergency department staff of a comprehensive stroke center use the standard stroke guidelines, lean principles, and team approaches to care. The stroke team and staff nurses worked through performance improvement initiatives to improve the timely care of the stroke patient in the Emergency Department. This poster illustrates how the protocol was modified to optimize the patients’ health outcome.

**Definition**

Stroke is likely caused by an obstruction in the blood flow, or the rupture of an artery that supplies blood to the brain. There are two main types of stroke: Ischemic stroke, which occurs in 87% of patients, occurs when a clot or thrombus forms blocking blood flow to the brain. Hemorrhagic stroke, which occurs when a blood vessel on the brain's surface ruptures and inundates the space between the brain and skull.

**Statistics**

The stroke team was activated 667 times in 2015 by EMS and the ED team. Of that, 318 patients received TPA and 21 received endovascular intervention in interventional radiology.

**Conceptual Model:**

The Robert Wood Johnson University Hospital Conceptual Model provides the basic framework by which competent, effective, and professional patient-centered nursing care is provided. All five of the Model’s key components are considered with regards to the implementation of the safety tools/initiatives that were instituted in the Emergency Department. However, the concept of Management of Health is best applied to this project; the goal is to “optimize the patient’s potential for health.”

**2015 Code Stroke Goals**

<table>
<thead>
<tr>
<th>Goal times</th>
<th>Door to CT &lt; 25 min</th>
<th>Door to CT read &lt; 45 min</th>
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<tbody>
<tr>
<td>Consider CTA per Endovascular Guidelines</td>
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**Pre Intervention Data**

- EMS activates code stroke & team alerted
- Resuscitation Room held and prepared
- Time clock started
- RN handoff completed
- Code Stroke Protocols Initiated and TPA as applicable
- Intervention as applicable
- Code Stroke Protocols Initiated and TPA as applicable
- Intervention as applicable
- Stroke unit bed assigned and ready
- RN handoff completed

**Initial Go-Live Results**

- Trial 1: Arrival to Decision 29 min. TPA not administered due to ICH
- Trial 2: Arrival to TPA Administered 29 min with a CTA completed.
- Trial 3: Arrival to TPA Administered 18 Min with a CTA completed.

**Quality Discussion**

- EMS being “out of service” to community
- ED MD and nurses screening versus initial assessment
- High TPA rate
- TPA delivery in CT Scan versus the ED
- Reduction in time of read due to pressures of the stroke Neurologist
- Hemorrhagic transformation rate of 0%

**Post Intervention Data**

- EMS activates code stroke & team alerted to CT
- TPA provides complete handoff to the MD at arrival in hallway. Quick MD screen
- Intervention as applicable
- Bed request for admission
- Code Stroke Protocols Initiated and TPA as applicable
- Time clock started
- RN handoff completed
- Code Stroke Protocols Initiated and TPA as applicable
- Intervention as applicable
- Stroke unit bed assigned and ready
- RN handoff completed

**Conclusion**

- The implemented process met the goal of reducing door to TPA administration times
- Results sustained with zero adverse patient outcomes related to ED initial assessment or TPA administration
- CT complete to CT interpretation times most improved

**References**

- Clare L. Abinu, MD; Peter C. Austin; PhD; Jack V. Tu, MD; MD; PhD; Michael J. Schuld, MD, MSc. Effect of time to electrocardiogram on time from electrocardiogram to balloon time in acute myocardial infarction patients. CJEM 2011;13(2):70-82.