**Purpose:** The purpose of this project was to improve patient outcomes by early recognition of both stroke and traumatically injured patients in both a Comprehensive Stroke Center and Level 1 Trauma Center. Several cases were identified in which patients were primarily treated for stroke without consideration for the underlying traumatic injury. An alert, deemed “STRAUMA” i.e. Stoke Alert and Trauma Activation, was developed to allow for simultaneous response of teams, with the goal to improve the following metrics:

- Door to Diagnosis
- Door to computed tomography (CT) time
- Door to alteplase administration time
- Door to groin puncture time

**Resources:** This project took place at an urban Level I Trauma Center and Comprehensive Stroke Center. Annual ED volume is 105,000 visits/year, with 2400 trauma registry patients and 1100 stroke alert patient annually. This project focused on patients presenting with any traumatic mechanism with stroke like symptoms within 24 hours of neurological symptoms. Total STRAUMA volume included 74 patients from January 1, 2019 thru December 31, 2019.

**Description:** This initiative focused on improving patient outcomes and decreasing arrival time (i.e. Door) to treatment decision. The following steps were taken:

- Early recognition of a traumatically injured stroke patient with initiation of STRAUMA activation.
- Collaboration with Neuroscience, Trauma Service, and Emergency Department (ED) service lines to generate clinical practice guidelines and development of STRAUMA criteria.
- Treatment team from these service lines are notified of STRAUMA activation and assemble in resuscitation bay.
- Trauma Surgeon and ED Physician quickly perform the primary survey and intervene for life saving interventions. Once complete, the Neurologist performs a rapid National Institute of Health Stroke Scale (NIHSS) assessment in the disability portion of the primary survey.
- A collaborative treatment plan is determined along with patient disposition.

STRAUMA criteria was developed during case review as patients were identified as having delays in stroke treatment or treatment of their traumatic injuries when only one alert was called. This led to delay in treatments due to dual diagnosis. A multidisciplinary team, consisting of neurology, trauma, and ED service line members was formed to develop the STRAUMA alert process.

**Effectiveness:** When comparing Pre-implementation data to Post-implementation data, a 35.5% reduction in average door to CT time, a 14.9% reduction in average door to alteplase times, and 23.8% reduction in average door to groin puncture time was demonstrated. (Refer to data table and metrics graph)

**Lessons Learned:** This project has required a multidisciplinary approach and collaboration between trauma, emergency department, and neuro service lines. Implementation included provider and staff education, workflow modifications, and simulation training. The primary challenge was securing physician champions from each service line and scheduling meetings. In addition, it is important to correlate the patient population and data points abstracted between the service line registries. Ongoing communication and case review is crucial to streamline and improve upon workflow and process.

**Conclusions:** Creating a combination trauma/stroke response activation process improved early recognition as well as positively impacted patient outcomes. A STRAUMA clinical practice guideline (CPG) was developed with an algorithm demonstrating course of care pathways for hemodynamically stable and unstable patients (Refer to CPG Fig.1). An amendment to this CPG will delineate a third pathway which includes low mechanism, stable ground level fall patients. A STRAUMA committee was formed to monitor quality outcomes and continuous process improvement.