



IMPROVING THE PERCENT OF PATIENTS RECEIVING INTRAVENOUS ALTEPLASE (DOOR TO NEEDLE TIME) FOR ISCHEMIC STROKE PATIENTS



Todd Aspegren MD; Rachel Milbern MSN, RN, CEN; Ashley Overstreet, MHA, RT (R) (CT); Rochelle Hearn BSN, RN; Micha Bailer BSN, RN, CEN, SCRNP; Garrick Smitherman BSN, RN; Brent Ottarski PharmD, BCPS; Kimberly Thedford CPHT; Shuvai Chambwe MHA, RN, CPHQ

INTRODUCTION

- The leading cause of adult disability in the United States is stroke. For every minute that a stroke goes untreated, nearly two million neurons are lost (Saver, 2006). The most critical factor, to successfully restore perfusion to the affected area of the brain, is early treatment.
- Decreasing the time that eligible AIS patients receive IV alteplase reduces the burden of disability (Virani et al., 2020). It also reduces the financial burden through decreased hospital length of stay (LOS) for ischemic stroke patients (Ibrahim et al., 2016). Successful stroke recovery depends on how quickly the patient receives treatment. IV alteplase (DTN) can be given within 4.5 hours of an AIS patient's symptoms starting.
- Baylor Scott & White Medical Center Waxahachie (BSWMCW) is a primary stroke center certified by The Joint Commission (TJC) and designated by the state of Texas. BSWMCW's DTN time reflected that only 27.3% of AIS patients received IV alteplase within 60 minutes, with the average DTN time of 71 minutes.
- The bedside team discussed obstacles that caused delays in DTN time. A cause and effect diagram was constructed, and root causes identified. 58% of the root causes were due to environmental constraints. A spaghetti diagram was created showed how their movement correlated with environmental restrictions.

OBJECTIVES

- Redesign the ED code stroke process by utilizing the space outside of Radiology suite to accommodate the quick administration of IV Alteplase for eligible stroke patients by July 1st 2019.
- Educate 80% of ED physicians and ED nurses through mock code stroke scenarios by August 25, 2019.

GOAL

- To achieve a DTN time within 60 minutes in 50% of AIS patients for FY2020.

METHODS

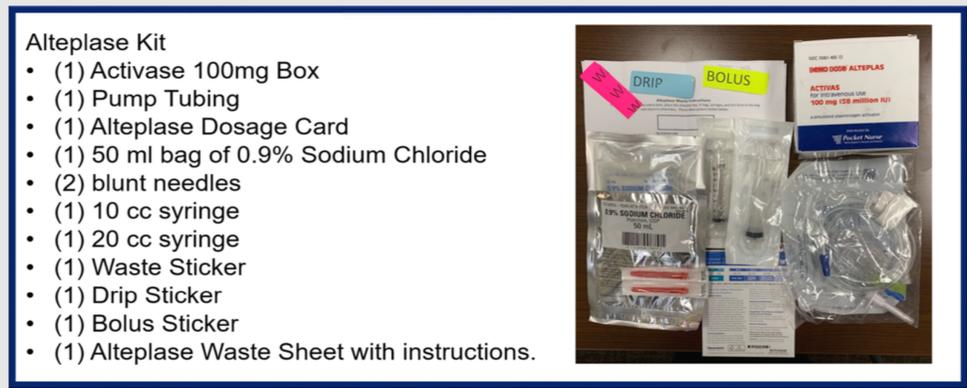
1st Implemented Change: Redesigned Stroke Room

- The team noted 58% of the root causes were related to the environment. The time the patient arrives, until the order is placed, is Door to Order which contributed to the overall delay in DTN time. The patient and family were not located together. The team identified that a storage room in the Radiology Suite could be repurposed as "The Stroke Room". Team identified that the Stroke Room also needed equipment such as a computer, bed with scale, IV pump and stroke robot. A trial was planned for July 2019.



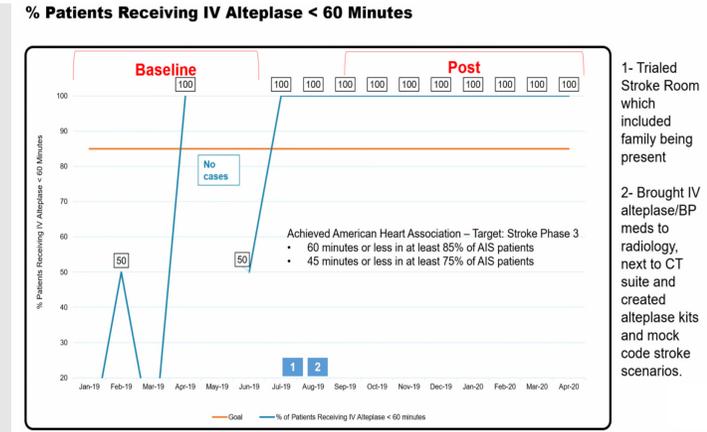
2nd Implemented Change: Alteplase Kit

- During the trial phase there were numerous nurses present which contributed to the shortened time from order to administration. Typically there is only one nurse and they are spending their time gathering the needed supplies and medications.
- A process change was put into place to improve the time from order to administration. Nursing, Pharmacy and Radiology worked together to create an IV alteplase kit and store blood pressure (BP) medications, labetalol and nicardipine, in the Radiology Suite Omnicell next to the Stroke Room.



RESULTS

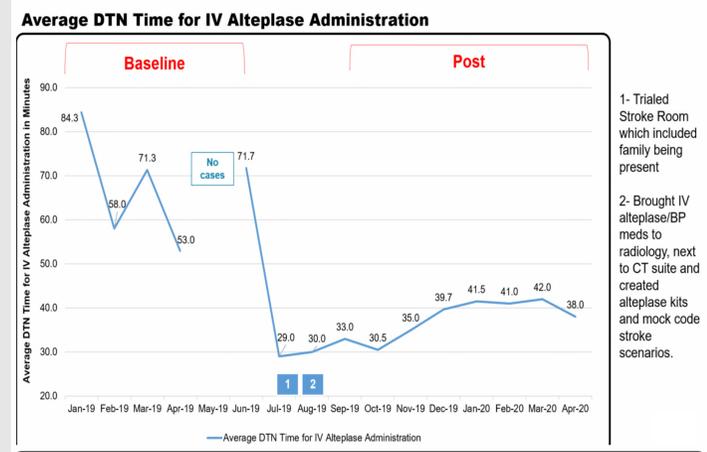
- Achieved project goal and have sustained door to IV Alteplase times for 60 minutes or less in 100 percent of acute ischemic stroke patients over 8 months.



1- Tried Stroke Room which included family being present

2- Brought IV alteplase/BP meds to radiology, next to CT suite and created alteplase kits and mock code stroke scenarios.

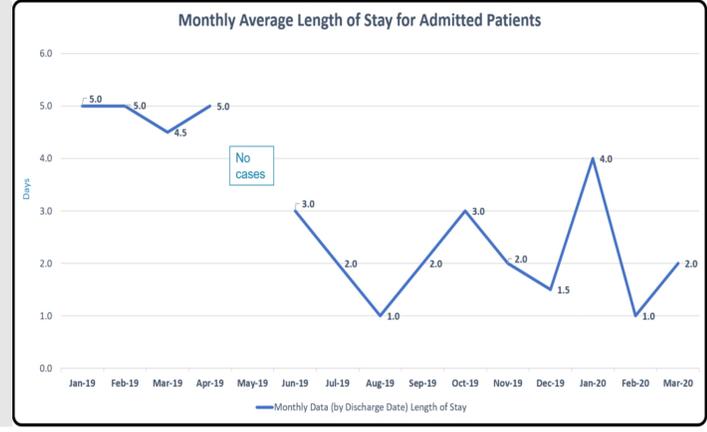
- The average monthly door to IV Alteplase times decreased to 29 minutes when project started in July 2019.



1- Tried Stroke Room which included family being present

2- Brought IV alteplase/BP meds to radiology, next to CT suite and created alteplase kits and mock code stroke scenarios.

- Average length of stay decreased to 2.0 after implementation of project.



CONCLUSION

- Creating a Stroke Room within the Radiology Suite and stocking Alteplase supplies in Radiology Omnicell resulted in 100% of AIS patients achieved a DTN time within 60 minutes by December 31, 2019 which has continued through April 2020. Average DTN time decreased from 71 minutes to 37.6 minutes.