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12-2015

An Emergency Department's Journey to Decreasing Door-to-Neurology Consult Times in our Acute Stroke Patient Population

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Citation

An Emergency Department's Journey to Decreasing Door-to-Neurology Consult Times in our Acute Stroke Patient Population

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Introduction

Stroke is a medical emergency, with a mortality rate higher than most forms of cancer. It is the second leading cause of death in developed countries and is the most common cause of serious, long-term disability in adults (1). In addition to the impact on patients and families, there are major economic consequences: the total cost of stroke in the USA is estimated to exceed US $56 billion in 2005 (2). Stroke is a clinical emergency requiring urgent medical intervention and time is of the essence, as they say, "time is brain". In previous studies it has been shown that telestroke consultation can decrease the time to treatment, even over bedside evaluation (3). Hence, an emergency department of a newly opened hospital implemented a "Tele Stroke" cart to promote timely care.

Goals

The goal of this performance improvement initiative was to decrease the time it takes from patient arrival in the ED to the time it takes for them to be "seen" and evaluated by neurology.

Methods/Implementation

ED Administration and Physician leadership came together and decided to implement a "TeleStroke" cart to improve the efficiency and effectiveness of caring for acute stroke patients. Prior to the implementation of the "TeleStroke" cart there was a 3-month span of education for ED nurses, ED physicians and neurologists. The education included training on the use of the TeleStroke cart, camera and CT screen manipulation, CT-viewer application, video-conferencing application, the stroke alert algorithm and activation hotline. Super-users were identified and received additional training, along with the department's Patient Care Supervisors, through mock events. Data was obtained from stroke alerts originating from only the Emergency Department where the TeleStroke cart would be deployed. Pre-data was collected 6 months pre-implementation from September 2013 to March 2014. Post-data was collected 6 months post implementation from May to October 2014. The Wilcoxon rank, a non-parametric test, was used to determine significance. Significance was set at $p < 0.05$

Revised 3/3/14

Use of Telestroke post implementation

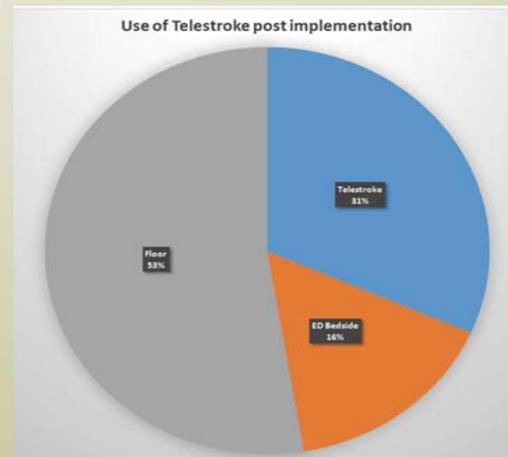| n=sample	Pre	Post
Floor	n = 22	n = 20
ED Bedside	n = 6	n = 6
TeleStroke	n = 0	n = 12

Outcomes

Median time of neurologist evaluation from time of arrival to evaluation on the floor is 1072 minutes (Approx. 17 hours) prior to implementation of TeleStroke. Median time of Neurologist evaluation from time of arrival to evaluation is 31.5 minutes post implementation of TeleStroke, mean is a approx. 39 minutes.
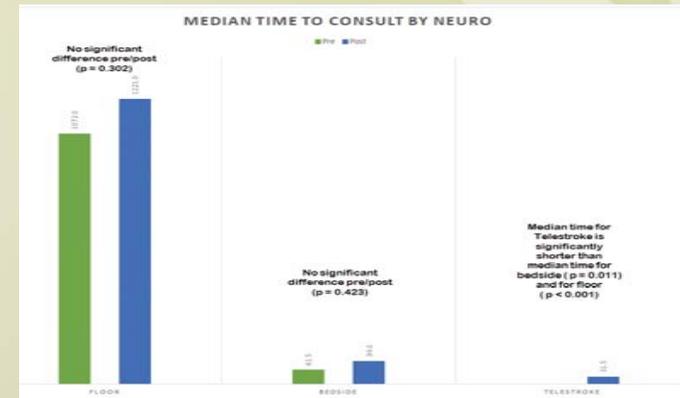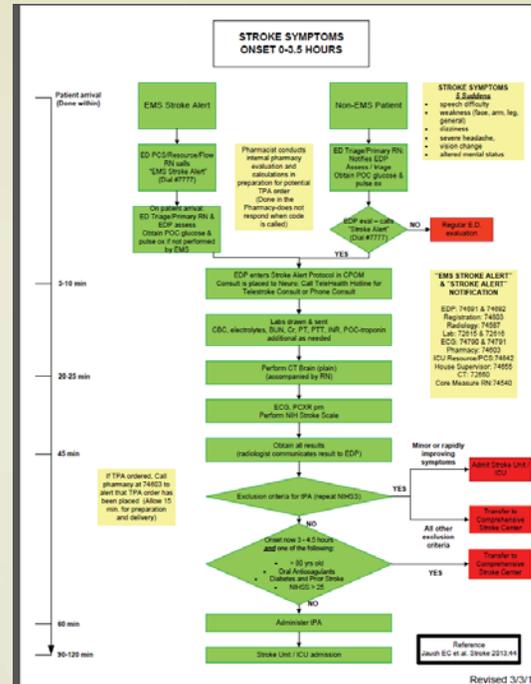
Conclusion

Data does show a statistically significant difference in the amount of time between TeleStroke and ED bedside evaluation times, as well as between TeleStroke and Floor evaluation times. Thus, the use of the TeleStroke cart for neurology evaluation is the optimal choice as demonstrated by the drastic decrease in patient arrival to evaluation times, even over ED Bedside evaluations. However, underutilization of TeleStroke was evident and suggests that process improvement is warranted in order to expand use and impact on patient care along with outcomes.

References

1) Davis, S., Lees, K. and Donnan,G. Treating the acute stroke patient as an emergency: current practices and future opportunities. Int J Clin Pract. Apr 2006; 60(4): 399–407.

2) American Heart Association. Dallas, Texas: American Heart Association; 2005. Heart Disease and Stroke Statistics – 2005 update.

3) Switzer, J. and Hess, D. Development of Regional Programs to Speed Treatment of Stroke. Current neurology and neuroscience reports. January 2008; 8(1): 35-42.