Emergency Medical Services Hospital Prenotification and Stroke Time Targets

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Background
The New York State Department of Health (NYSDOH) established stroke designated centers (SDCs) in 2004 to improve the quality of care and outcomes for patients who experience a stroke in NYS. The SDCs annually submit aggregate data to the NYSDOH for time targets (shown below) and quality measures.

Study Design
Patient level records from 63 NYS stroke centers participating in the Paul Coverdell National Acute Stroke Program with arrival dates between January 1, 2015 and December 31, 2016 are included in the analysis. Out of 62,270 extracted records, 1,905 (3.1%) are removed from the analysis due to elective carotid intervention or data integrity issues such as missing or invalid data. The final study cohort includes 60,365 records.

Methods
Descriptive summaries are prepared to investigate the number of patients arriving by EMS with EMS prenotification. Logistic regression is performed to determine if there is an association for the outcomes of interest. The outcomes of interest are (1) EMS prenotification and (2) time target achieved.

Study Goal
The purpose of this study is twofold: (1) to investigate EMS prenotification by demographic subgroup; and (2) to determine if there is an association between prenotification and achievement of NYS time targets.

Time Targets
- Door to MD Assessment (Goal: 510mins)
- Door to Stroke Team (Goal: 515mins)
- Door to Brain Imaging Completed (Goal: 545mins)
- Time to IV Thrombolytic Therapy (Goal: 6060mins)

Emergency Medical Services (EMS) initiative measures, such as prenotification for suspected stroke, were added to the required quality metrics in 2015. Studies have shown an association between EMS prenotification and reduced time to treatment.

Discussion
The study shows EMS prenotification is associated with increased odds of all NYS time targets being met; however, only 38.9% of records for patients arriving via EMS have documented prenotification. This is an area where NYS SDCs can improve by collaborating with EMS and enhancing data quality.

Limitations
- Additional analyses are needed to determine if the low prenotification percentage is real (EMS not pre-notifying) or a product of poor data quality/reporting such as missing emergency department documentation or the data not being captured in GWTG.

Conclusions
EMS prenotification is associated with improved evaluation and treatment of acute ischemic stroke.

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References