The ‘When’ in Response to BEFAST by EMS

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BACKGROUND

In cases of suspected stroke in prehospital patients, emergency medical services (EMS) response focuses on rapid assessment and transport. In Arkansas, stroke patients are identified by a unique barcode wristband for tracking and quality assurance.

Figure 1. Illustration of a stroke band to identify patients as stroke.

Prehospital stroke screens, such as BEFAST (Balance, Eyes, Face, Speech and Time), may influence destination decisions and transport time.

Figure 2. Image of the BEFAST acronym for stroke determination utilized by paramedics.

We examined utilization of Stroke as a primary impression, compliance with placing stroke bands, if prehospital BEFAST influenced *transport times* from First Medical Contact (FMC), and which components of BEFAST were associated with rapid transport.

METHODS

In a single large urban EMS agency, prehospital care records of suspected stroke from Jan 1 to Dec 31, 2022, were retrospectively evaluated utilizing primary or secondary impression of Stroke or Transient Ischemic Attack (TIA).

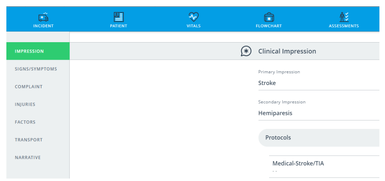


Figure 3. Image of the ePCR device used by paramedics in the field for primary impression codes of stroke.

METHODS

FMC and BEFAST performance time was noted and time intervals of FMC to BEFAST (FMC2BEFAST) and FMC to Arrival at destination (FMC2Arrival).

Protocol compliance was determined by the placement of a stroke band.

Time measures and BEFAST normal or abnormal scores were determined by ANOVA and protocol compliance with BEFAST with chi-square analysis.

RESULTS

There were 224 EMS transports for Stroke/TIA in 2022.

Stroke bands were placed in 54% of patients with Stroke/TIA impressions.

Stroke was a primary impression in 13% of transports and a secondary impression in 77% of transports.

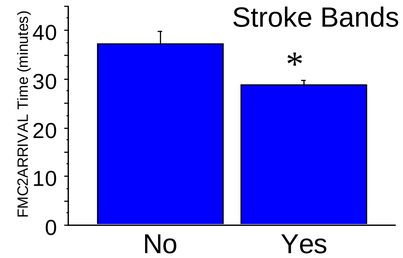
Patients with abnormal BEFAST associated with significant stroke band placement ($p \leq 0.018$).

	Balance	Eyes	Facial Droop	Arm Drift	Speech
Abnormal	54%	26%	36%	41%	60%
Stroke Bands	61%	65%	69%	27%	62%

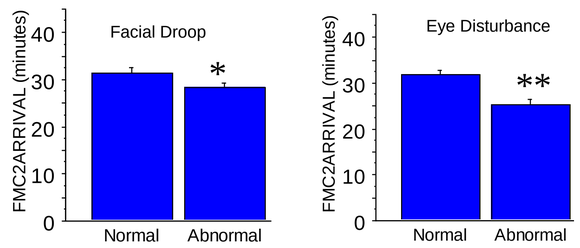
Table. Data represents a total of 224 EMS transports for Stroke/TIA in 2022. Seventy-seven percent of these transports had secondary impressions of stroke. The highest percentage of stroke band placement were in Facial abnormalities, however speech or dysarthria was most often noted as abnormal.

RESULTS

FMC2Arrival time had a 9 min improvement with stroke band placement (*p=0.0021).



Patients with abnormal Facial Droop (*p=0.043) and Eye Disturbance (**p=0.022) had significantly shorter FMC2Arrival times.



FMC2BEFAST times were p=NS. Abnormal Balance, Arm Drift nor Speech was not associated with shorter FMC2Arrival times (p=NS).

CONCLUSIONS

Rapid evaluation and transport of suspected stroke patients can be challenging. Identification was low in our single center study, abnormalities in Facial Droop and Eye Disturbances resulted in faster transport time. Improved training on the identification and screening may result in a higher stroke band placement, recognition and rapid transport times.