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# Addressing Stroke Patient and Family Reasons for Not Calling 911

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## INTRODUCTION

Our Comprehensive Stroke Center regularly provides community outreach and stroke education. Approximately 1/3 of our stroke alerts are walk-ins, and at our sister hospitals (primary and acute stroke ready), nearly 2/3 of their stroke alerts are walk-ins. Per state policy, EMS takes an acute ischemic stroke patient to the closest stroke certified center (PSC or CSC) and not the patient's preferred hospital. Fire Officers Association of Miami-Dade (FOAMD) uses an algorithm based on a pre-hospital stroke scale, time since last known well, and distance from scene to stroke center to triage patients. The purpose of this survey was to determine common reasons why 911 was not called for possible strokes to improve community stroke education interventions.

## METHODS

Neuroscience nurses call all stroke patients within a few days of discharge to ensure patients have obtained their prescription medications, have follow-up appointments, inquire about their satisfaction with our services, and reinforce stroke education. In June 2018, as part of these calls, our team started asking why patients/families did not call 911, then provided education on the importance of calling EMS. Between 6/6/2018 and 1/7/2019, 588 stroke patients were called (Figure 1).

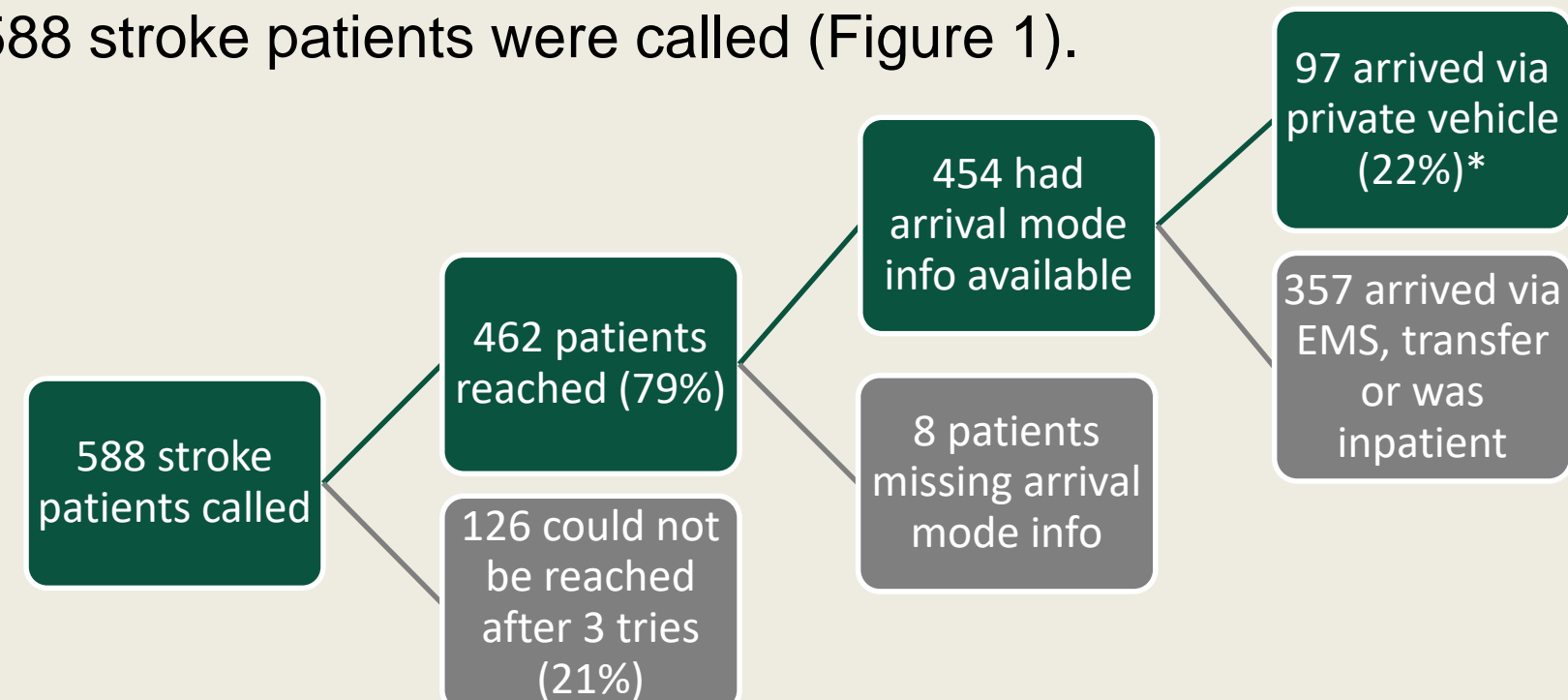


Figure 1. Summary of number of discharge phone calls. The asterisk denotes the group of patients included in this analysis.

This study was primarily exploratory; however, chi square and Student's t-test were used to determine if the demographics were statistically different than expected for our center.

## RESULTS

Demographics		
	Mean ± S.D.	Statistical Significance
<b>Age</b>	67 ± 15 y	p<0.01
<b>Sex</b>	n (%)	n.s.
Male	54 (56%)	
Female	43 (44%)	
<b>Diagnosis</b>	n (%)	p<0.01
Acute Ischemic stroke (AIS)	71 (73%)	
Transient ischemic attack (TIA)	12 (12%)	
Subarachnoid hemorrhage (SAH)	9 (9%)	
Intracerebral hemorrhage (ICH)	5 (5%)	
IV t-PA and/or endovascular reperfusion	8/71 (11%)	

Table 1. Demographic characteristics of stroke patients who arrived via private vehicle.

- No statistical difference between observed and expected percent of males vs. females [ $\chi^2 (1, N = 97) = 1.25, n.s.$ ] was found
- Based on overall stroke subtype distribution at our center (77% AIS, 11% ICH, 6% SAH, 5% TIA during the last fiscal year), a statistical difference between observed and expected subtypes [ $\chi^2 (3, N = 97) = 15.57, p<0.01$ ] was demonstrated
- The sample in our study was younger on average than the average stroke patient (67 vs. 71 years) at our center [ $t(96) = -2.69, p<0.01$ ]
- The top three reasons for not calling 911, attributed to over 60% of the cases were (Figure 2):
  - Preference for our hospital over a closer stroke center
  - Patient/family did not think it was an emergency
  - Patient/family did not want to wait for EMS and thought driving would be faster

## RESULTS

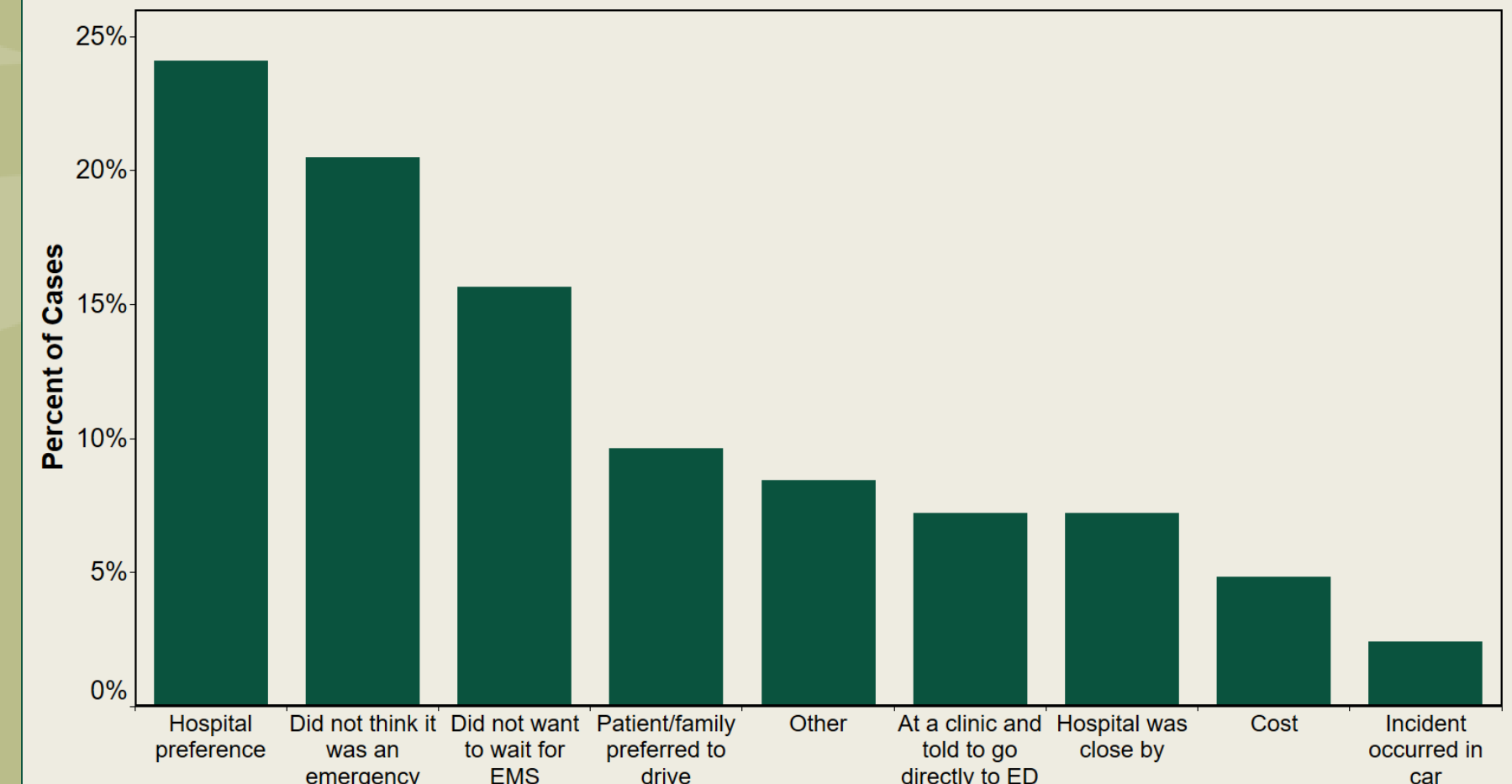


Figure 2. Reasons given for not calling 911.

## CONCLUSIONS

The most common reason patients and families gave for not calling 911, was hospital preference.

- Rate of 911 use for AIS may increase if patient's preference could be incorporated into EMS algorithms when determining hospital destination. Other considerations are traveling time, PSC vs. CSC, and patient's clinical presentation
- Patients who arrived via private vehicle were younger, and more likely to have had a TIA or mild symptoms, when compared to our total stroke population
- Study findings will be used to modify educational materials and activities in our community, to improve awareness on the importance of calling 911 for AIS.

## ACKNOWLEDGMENTS

Discharge phone call data were collected and managed using REDCap electronic data capture tools, hosted at Baptist Health South Florida.