



**KANSAS INITIATIVE FOR  
STROKE SURVIVAL**  
A PROJECT BY AND FOR KANSANS

Phone (913) 588-1554 • Fax (913) 945-8892

# FAST-ED Tool in Stroke Triage

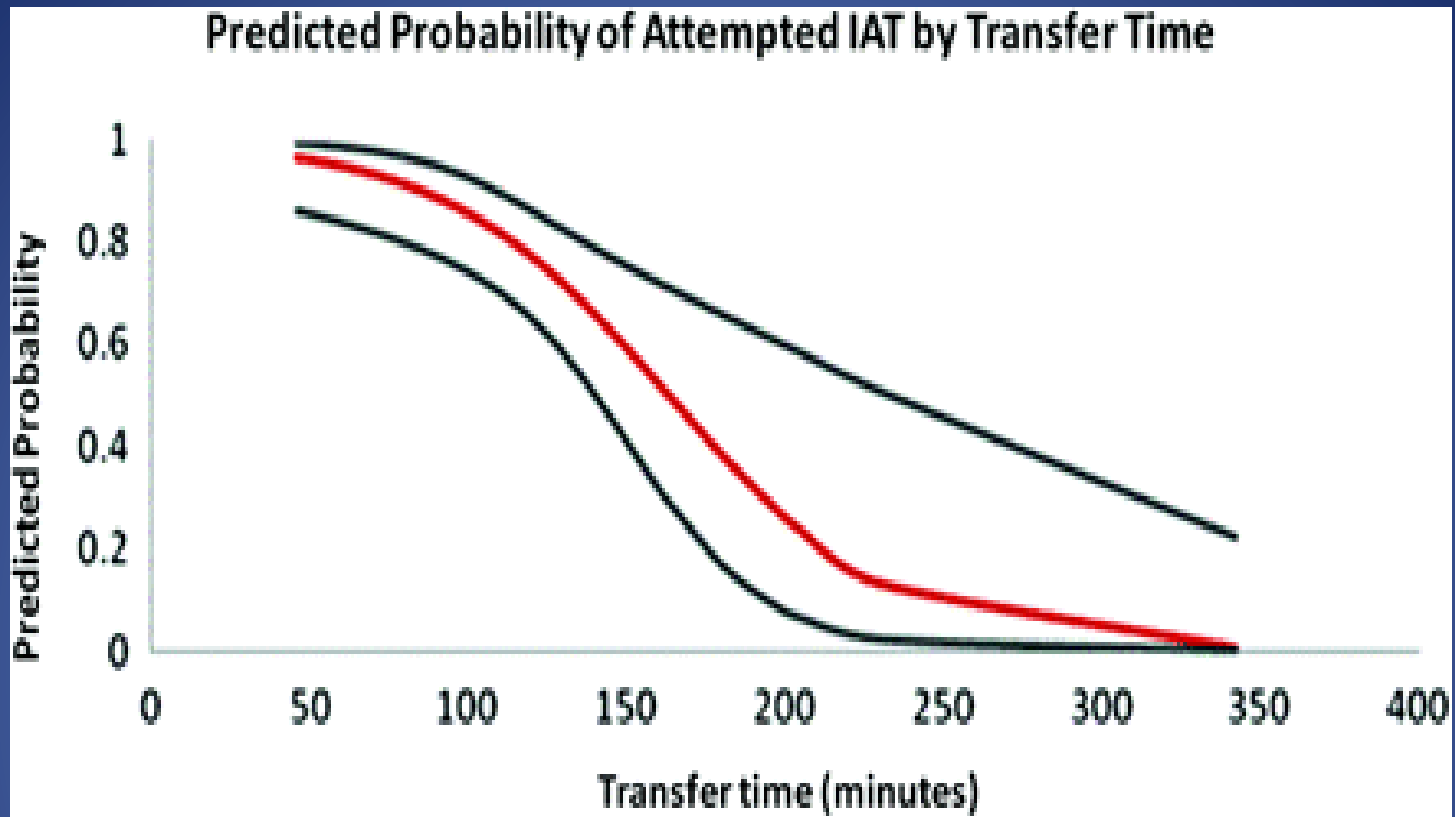
“First Tuesdays” Lecture Series

# Introduction and Goal of “First Tuesdays”

- Sabreena Slavin MD – Vascular Neurologist and Neurohospitalist at KU School of Medicine
- Didactic lecture series as part of the Kansas Initiative for Stroke Survival
- Updates in Practice and FAQ’s on Acute Stroke Care
- 20 minute didactic, 10 minutes for questions/discussion.

# Review of Acute Stroke Interventions

- IV alteplase (tPA) for all patients who have **disabling symptoms** of acute stroke
- Mechanical thrombectomy: **only for large vessel occlusions (LVO)**. Only hospitals with capabilities (eg: comprehensive stroke center) can perform thrombectomy.
  - A higher NIHSS (10 or more) can be indicative of a large vessel occlusion.
  - Diagnosed with CTA head/neck



- In a hub-and-spoke system in Chicago, transfer delay between referring hospital and CSC excluded 14% of 79 patients initially eligible for interventional therapy.

Time intervals according to treatment location.

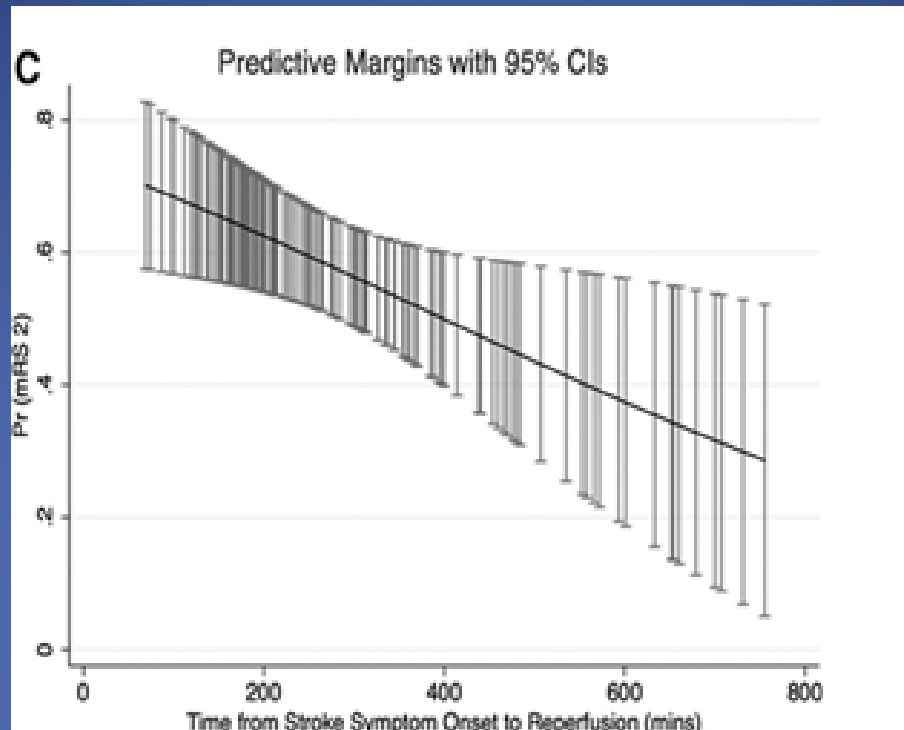
Time interval (Minutes)	Mother-shi (N = 334)		Drip and ship (N = 64)		Ship and drip (N = 17)	
	Median	IQR	Median	IQR	Median	IQR
IV tPA bolus to randomization	24	25	22	32	25	27
Randomization to groin puncture <sup>*</sup>	60	35	82 <sup>†</sup>	34	57	52
IV tPA bolus to groin puncture <sup>*</sup>	83	37	105 <sup>†</sup>	47	65	57

\*P-value for Kruskal-Wallis test: <0.0001

†Comparing to Mother-ship only, P-value < 0.0001

- Time intervals to groin puncture are greater for drip-and-ship than being treated at the same hospital.

From IMS III trial data; Goyal et al, Circulation, 2014



- Every 30 minute increase in time from initial CT to reperfusion is associated with decrease in mRS 0-2 by 8.3%.

From ESCAPE trial data; Menon et al, Circulation, 2016

# How to Triage?

- Zhao et al, *Stroke* 2017: comparison of five prehospital scales (RACE, FAST-ED, LAMS, PASS, CPSSS) in two Australian centers.
- All had similar accuracies (between 81 – 86%) in detecting LVO.
- The FAST-ED  $\geq 4$  had 70% sensitivity, 86% specificity, **48% PPV, 93% NPV** for LVO.

Item	FAST-ED Score	NIHSS Score Source
<b>Facial palsy</b>		
Normal or minor paralysis	0	0-1
Partial or complete paralysis	1	2-3
<b>Arm weakness</b>		
No drift	0	0
Drift or some effort against gravity	1	1-2
No effort against gravity or no movement	2	3-4
<b>Speech changes</b>		
Absent	0	0
Mild to moderate	1	1
Severe, global aphasia, or mute	2	2-3
<b>Eye deviation</b>		
Absent	0	0
Partial	1	1
Forced deviation	2	2
<b>Denial/Neglect</b>		
Absent	0	0
Extinction to bilateral simultaneous stimulation in only 1 sensory modality	1	1
Does not recognize own hand or orients only to one side of the body	2	2

FAST-ED indicates Field Assessment Stroke Triage for Emergency Destination; and NIHSS, National Institutes of Health Stroke Scale.

Cutoff Score for possible LVO:  $\geq 4$

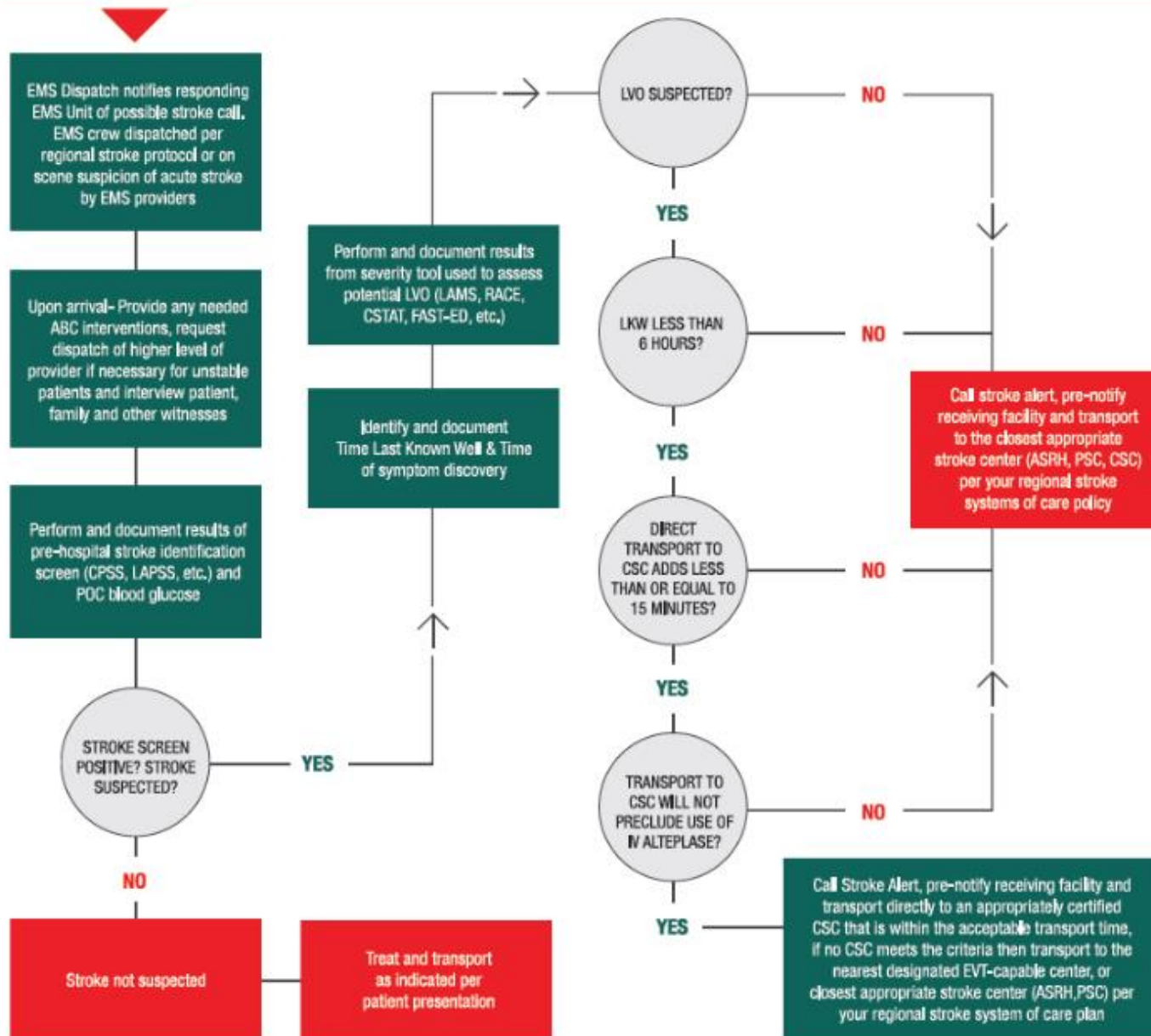
Lima et al, Stroke, 2016



# Limitations for LVO Scales

- Not designed for posterior circulation strokes.
- Need training of EMS
- Patients may have other need for CSC than just having a LVO.

# SEVERITY-BASED STROKE TRIAGE ALGORITHM FOR EMS



# Bottom Line

- Patients with an acute stroke LVO may be a candidate for mechanical thrombectomy, only available at specific centers.
- Definite way to diagnose LVO is with CTA head/neck in ED. However, clinical scales such as FAST-ED performed by EMS can help triage.
- Evidence is there to bypass primary stroke center for endovascular capable center if LVO suspected en route and difference in time to transport is less than 15 minutes.

# Questions?

- Call for help anytime!
- <http://www.kissnetwork.us/>