

Dane County EMS

Monthly Newsletter
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Stroke Evaluation

Acute ischemic stroke can be one of the most challenging conditions to diagnose in Emergency Medicine. The National Institutes of Health Stroke Scale (<https://www.mdcalc.com/modified-nih-stroke-scale-score-mnihss>) is one of the most widely used tools for evaluation of stroke by Neurologists, but was not developed to be a bedside evaluation tool. The Cincinnati Prehospital Stroke Scale (https://en.wikipedia.org/wiki/Cincinnati_Prehospital_Stroke_Scale) was derived from the NIHSS in 1997 with the intention of being used in the out-of-hospital environment, and uses three exam findings that can be used to detect an acute stroke. As a review, those three exam points are 1. *Facial Droop*, 2. *Arm Drift* and 3. *Speech* (slurred or inappropriate). Any patient with 1 of these 3 findings as a new event has a 72% chance of having an ischemic stroke, and if all 3 are present the chance goes up to 85%.

While tissue plasminogen activator (tPA) has been the standard treatment for ischemic strokes, in cases of Large Vessel Occlusion (LVO) there has been data to suggest that patients with this condition have worse outcomes and respond less well to tPA than small vessel occlusions. LVOs are believed to account for 40-50% of ischemic strokes, and this number is expected to increase as the population ages. With the advent of complex neurointerventional procedures in the last decade, there has been increasing interest in the Neurology and Neurosurgery communities to identify these patients early, and to get them to a neuroendovascular specialist with the ability to retrieve these large clots. This clot retrieval has been shown to improve patient outcomes and neurologic functioning.

For more information about LVOs and how EMS can positively impact these patient's outcomes, please review this EMS1.com article. <https://www.ems1.com/stroke-care/articles/318023048-What-every-first-responder-should-know-about-large-vessel-occlusion/>

What you need to know: There are currently several prehospital stroke scales being investigated to identify LVOs early, so that they may be triaged to the most appropriate facility that can intervene on their lesions. At this time, there is not a single scale that has been proven to be superior, although early research has shown several scales to be promising.

As part of an effort to improve communications and keep everyone "in the loop" on current and trending topics in out-of-hospital care, we have decided to update and enhance the monthly Dane County EMS Newsletter. We hope to integrate topics from the Dane County EMS Commission, Medical Advisory Subcommittee along with current topics of interest, distill them down to a quick reference and then distribute to all County EMS Personnel. Please send us any feedback you may have, as we want this to be useful for you, and help make your job as efficient as possible.

This month we will be covering Stroke Emergencies – discussing the FAST-ED score and how it will impact your practice.

THE FAST ED STROKE SCREENING

The Field Assessment Stroke Triage for Emergency Destination (FAST-ED) is one of the stroke scales aimed at detecting LVOs and aid in early management of these patients. It is a test that is relatively simple to administer, and has both a high sensitivity and specificity for detecting severe strokes. It has been reviewed by the American Heart Association, and has had some early unofficial endorsement.

<https://www.youtube.com/watch?v=rV7dvNWMvsg>

What you need to know: The FAST-ED stroke screen asks you to evaluate for *facial weakness (0-1 point)*, *arm weakness (0-2 points)* and *speech changes* (abnormal speech comprehension and/or production) (**0-2 points**) as well as *eye deviation (0-2 points)* and *denial* (neglect including asomatognosia and/or anosognosia) (**0-2 points**). A score of ≥ 4 on the FAST-ED score has an overall likelihood of predicting an LVO of 60-85%, and seems more adaptable to patient presentations than some of the binary stroke scales.

Scoring the FAST-ED Stroke Scale

Facial Palsy - Does the patient have facial weakness?

- Normal – both sides of the face move equally or not at all – 0 points
- Abnormal – one side of the face droops (or is clearly asymmetric) – 1 point

Arm Weakness - Does the patient have arm weakness?

- Normal – both arms remain up >10 seconds or slowly drift down equally – 0 points
- Mild Weakness – One arm drifts down in <10 seconds but has antigravity strength – 1 point
- Moderate/Severe Weakness – One or both arms fall rapidly, have no movement against gravity or no movement at all – 2 points

Speech content; Ask the patient to name 3 common items:

- Speech content normal AND names 2-3 items correctly – 0 points
- Speech content clearly abnormal OR names only 0-1 items correctly – 1 point

Speech comprehension; ask the patient to “show me two fingers” (Tip: only verbal commands with NO visual cues – do not SHOW them what you want)

- Patient shows two fingers – 0 points
- Patient does not understand, does not show two fingers – 1 point

Eye Deviation; Ask the patient to follow your finger as you move it from right to left and back again

- Normal – no deviation, eyes move to both sides equally – 0 points
- Gaze preference – patient has clear difficulty when looking to one side (left or right) – 1 point
- Forced deviation – eyes are deviated to one side and do not move (cannot follow finger) – 2 points

Denial / Neglect – Ask the patient, “are you weak anywhere?”

- Normal – patient is weak and recognizes it – 0 points
- Abnormal – patient is weak but does NOT recognize it – 1 point

Denial / Neglect – Ask the patient, “whose arm is this?”

- Normal – patient recognizes his/her weak arm – 0 points
- Abnormal – patient does NOT recognize his/her own weak arm – 1 point

DESTINATION DETERMINATION

At the time of this writing, there has not been conclusive evidence published that has solidified one scale as *the best* for prehospital evaluation of Large Vessel Occlusion strokes. However, as this is a Time Critical Diagnosis and early detection can have a high potential for positively impacting patient outcomes, we felt it was important to begin screening patients using the best tool currently available. Therefore, the FAST-ED scale was chosen and should be performed on any patient you think might be suffering an acute ischemic event.

Because of the current state of the medical literature and the capabilities of the hospitals in the greater Dane County area, we do NOT recommend changing your hospital destination based on your calculated FAST-ED score alone. However, we DO ask that you make this information part of your radio report to the receiving facility, so they are aware of your concern for an LVO. This will help the receiving Emergency Department better prepare to receive your patient and mobilize resources earlier. Occasionally, this information *may* result in your being diverted to a facility with neurointerventional capabilities that can perform early clot retrieval.

If you have any additional questions, please do not hesitate to contact me at mtlohmei@medicine.wisc.edu, or the Dane County EMS Office at (608) 266-5374.

Check us out on Facebook!

[www.facebook.com/](http://www.facebook.com/DaneCountyEMS)

DaneCountyEMS



MAS Activities

Some updates from this group include the ED to recovery program thru safe communities, this is a program that connects counselors with patients who have overdosed once they are admitted to the emergency department. There is also work being completed to assist with the in house refreshers training curriculum and the material for this monthly newsletter. You are welcome to attend to learn more, we meet on the second Monday of the month at noon at Madison Water Utility!

OPS Activities

The main objective of this group has been the State required transition to SALT triage. We have been working closely with Dan Williams from the RTAC to lock in funds to assist in purchasing triage ribbon kits for each ambulance. The training is nearly developed. We are planning for a train the trainer session in early August! If you have any questions or have a MCI exercise/training planned this summer please let us know!