



Tidewater EMS (TEMS) Regional Stroke Triage Performance Improvement (PI) Plan – 2021

Vision

To develop a Stroke Emergency Care System that decreases mortality and morbidity in the TEMS region.

TEMS Information

[The TEMS Region](#) – Includes information regarding the layout, demographics and weather

[Stroke Committee Membership](#) – Includes purpose, roles, responsibilities and membership

[Hospital Capabilities by Region](#) – Includes easily identified stroke center descriptions with names and location

Goals

This Regional plan is assigned to the Stroke PI Committee for development, updating and monitoring and provides guidelines to facilitate the early recognition of “Acute Stroke Patients” and expedite transport to a Healthcare Facilities Accreditation Program (HFAP), Den Norske Veritas (DNV), or Joint Commission (JC) “certified” Designated Stroke Center within the specified time frame. Within compliance of the Code of Virginia and EMS Regulations, this plan:

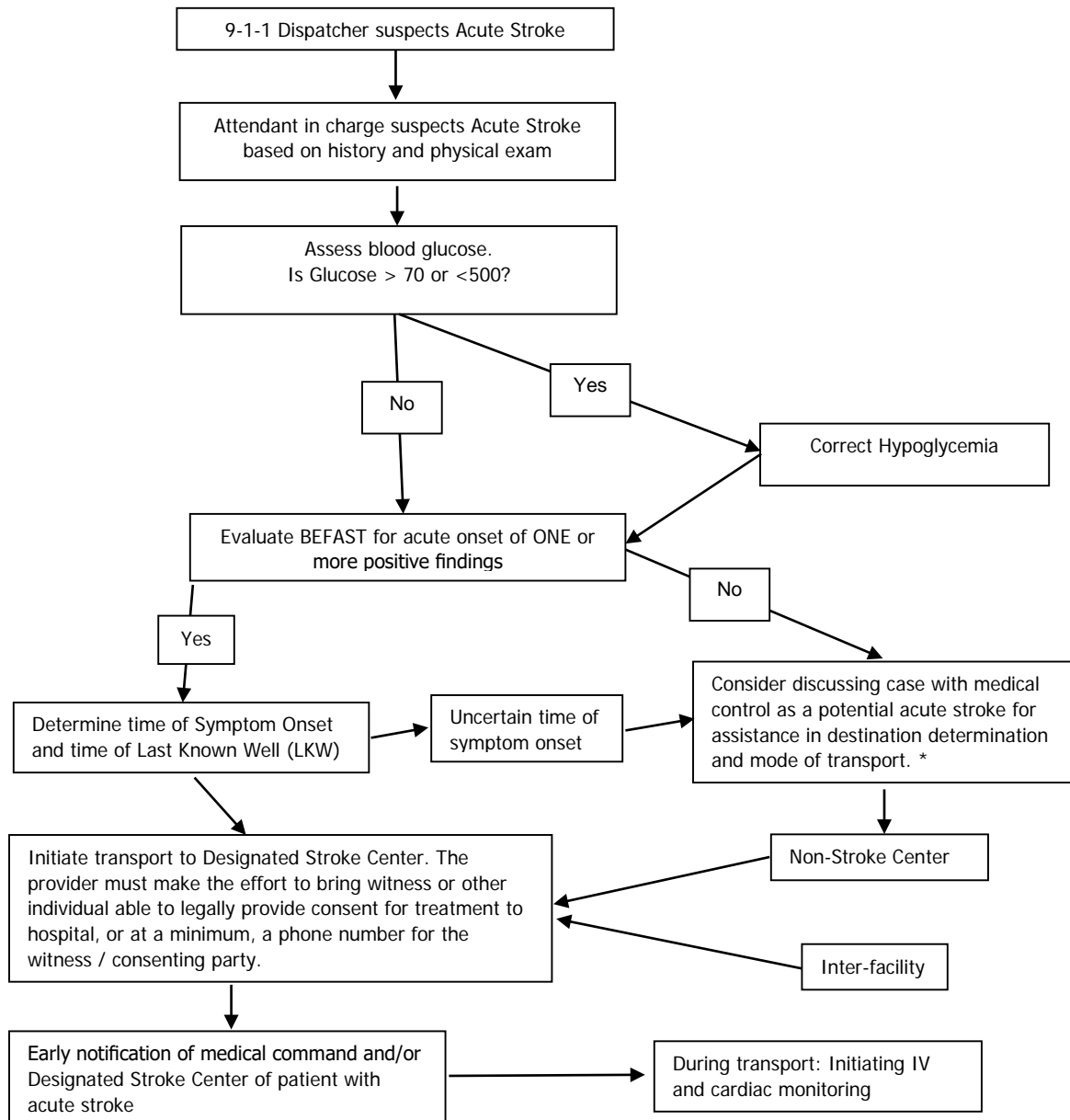
- Δ Establishes a uniform set of criteria for pre-hospital and inter-facility triage and transport of acute stroke patients
- Δ Sets guidelines for rapidly and accurately identifying patients suffering from Stroke-like presentation
- Δ Promotes the transportation of patients to the closest Designated Stroke Center (DSC)
- Δ Provide a plan to transport to a DSC via ground transport, Medevac, or non-designated centers based on the operational criteria for each
- Δ Encourages quality EMS service and patient care provided to the EMS system’s citizens
- Δ Continuously evaluate the EMS system based on established EMS performance measures for Stroke and incorporates the minimum reporting standards set by [Mission: Lifeline](#)
- Δ Aggregate acute stroke triage findings on an intermittent basis, at a minimum annually, to assist EMS systems and the Virginia Stroke Systems Task Force improve the local, regional and Statewide Stroke Triage Plans
- Δ Follow the Cerebral Vascular Accident (CVA or Stroke) protocol for Goals, Treatment, Special Considerations and decision scheme and reference the Prehospital Stroke Exams protocol for procedure
- Δ Designates the [Stroke PI Committee](#) responsible for execution

Stroke Related Resources

- Δ Virginia Stroke System Web page: <http://virginiastrokesystems.org/>
- Δ Virginia Office of EMS Stroke Web page: <http://www.vdh.virginia.gov/OEMS/Trauma/Stroke.htm>
- Δ JC: <http://www.jointcommission.org/CertificationPrograms/PrimaryStrokeCenters/>
- Δ DNV: <http://dnvaccreditation.com/pr/dnv/primary-stroke-center-certification.aspx>
- Δ HFAP: <https://www.achc.org/hfap.html>



Action Plan: Field Stroke Triage Decision Scheme



* If time from symptom onset is more than 4 hours, discuss case with on-line medical control as a potential “acute stroke patient” for additional guidance. Patients with specific acute stroke types may benefit from intervention up to 24 hours, although the sooner an acute stroke is treated, the better the potential outcome. Based on patient time of onset and discussion with Medical Control, consider whether use the helicopter EMS (HEMS) will offer potential benefit to the patient, either in **time to Designated Stroke Center**, or for critical care management expertise. EMS does not determine whether a patient is excluded from any or all therapeutic options. Final decisions regarding patient eligibility for any given intervention will be determined by the receiving physician(s).



BEFAST Pre-Hospital Stroke Scale

All patients suspected of having an acute stroke should undergo a formal screening algorithm such as the BEFAST. Use of stroke algorithms has been shown to improve identification of acute strokes by EMS providers up to 30%. ANY, one or more, abnormal (positive) finding which is suspected or known to be acute in onset is considered an indicator of potential acute stroke.

B-(Balance)	BALANCE: Is the person experiencing a sudden loss of balance or coordination? Normal: Patient is free of balance or gait issues. Abnormal: Patient has a sudden or new loss of balance or gait.
E-(Eyes)	EYES: Is person having a sudden change in vision or trouble seeing? Normal: Patient has no change in vision or blindness. Abnormal: Patient has change in vision, blindness in field of vision, or a gaze to one side.
F-(Face)	FACIAL DROOP: Have patient smile or show teeth. (Look for facial asymmetry) Normal: Both sides of the face move equally or movement is normal for patient. Abnormal: One side of the patient's face droops or does not move.
A-(Arm)	MOTOR WEAKNESS: Arm drift (Have patient close eyes, extend arms, palms up for 10 seconds; if only leg is involved, have patient hold leg off floor for 5 seconds) Normal: Remain extended equally, drifts equally, or does not move at all. Abnormal: One arm drifts down when compared with the other.
S-(Speech)	Have the patient repeat, "You can't teach an old dog new tricks" Normal: Phrase is repeated clearly and correctly. Abnormal: Words are slurred (dysarthria) or abnormal (dysphasia) or none (aphasia).
T-(Time)	Time of SYMPTOM ONSET or LAST known to be NORMAL _____ If patient awakened with symptoms, when were they last known to be normal?

* Results of the BEFAST should be documented on the patient's pre-hospital medical record.

Specific Processes:

- Δ The ability to rapidly and accurately identify patients suffering from Stroke.
- Δ Patients who have sustained a Stroke event must receive care in a hospital that has a Stroke treatment program in place, which is capable of providing immediate and comprehensive assessment, resuscitation, intervention, and definitive care.
- Δ The Tidewater EMS Council must have continuous and effective region-wide coordination of pre-hospital and hospital care resources so that Stroke patients will be most expeditiously transported to the closest available interventional center or facility capable of performing neuro-endovascular procedures and neurosurgery; and, so that patient care can be provided in a manner that is both appropriate and timely, while establishing and maintaining continuity. To accomplish this there must be a method of tracking the care capability for Stroke patients and reviewing the quality of the process itself.
- Δ Provide quality EMS service and patient care to the EMS Systems' citizens.
- Δ Continuously evaluate the EMS System based on established Stroke EMS performance measures.
- Δ Benchmark analysis.

Best Practices

- Δ Providers should gather information (e.g. history, etc.) that will assist physician(s) to evaluate the suitability for acute reperfusion therapy of any patient presenting with signs/symptoms that suggest stroke or ischemic chest pain



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- △ Fill out the [appropriate checklist](#) (located on page 11) **without delay** of treatment or transport and present it to the emergency department physician at the receiving facility
 - △ Mode of transportation for Stroke patients who meet any of the criteria of the BEFAST Pre-Hospital Stroke Scale, indicative of an acute stroke, shall be transported to the **closest Designated Stroke Center**
 - Transport time, road and weather conditions should help determine best transport option
 - Use HEMS to lessen the time from scene to Stroke Center vs ground transport; within three hours of symptom onset (on-line medical control can alter the window of onset to treatment); and transport directly to a Designated Stroke Center
 - △ Any patient with a compromised airway or impending circulatory collapse must be transported to the closest hospital Emergency Department, regardless of stroke readiness capability
 - △ Initiate Rapid transport once acute stroke is suspected. Rapid Transport means shortening scene time and **DOES NOT mean transporting with red-lights and sirens**
 - △ The benefit of reperfusion therapy decreases with time; consultation with on-line Medical Control is **STRONGLY** encouraged when patient will not arrive at a Designated Stroke Center within the three-hour window from symptom onset.
 - △ Stroke Designation/Certification is voluntary and identifies hospitals that established and maintain an acute stroke program which provides a specific level of medical, technical, and procedural expertise for acute stroke patients as designated by Centers for Medicare & Medicaid Services (CMS) through JC or other accrediting bodies approved by CMS for this purpose
 - △ Designation ensures that the hospital is prepared to provide definitive acute stroke care at all times and has an organized approach to providing clinical care, performance improvement, education etc.
 - △ The TEMS council does not oversee the process for inter-facility transfer of patients, but hospitals should have guidelines and agreements developed and executed for acute stroke patients

Evaluation Criteria

All reports are de-identified for confidentiality and compliance to the statewide plan.

- △ Stroke alert going to receiving centers
- △ % Last Known Well documentation
- △ % stroke with glucose reading
- △ Stroke on-scene time <15 minutes
- △ Over- and under- triage to Designated Stroke centers in comparison to the total number of acute stroke patients delivered to hospitals
- △ Helicopter EMS utilization
- △ Mission: Lifeline Stroke
 - % of patients with suspected stroke for whom advanced notification (Stroke alert) was provided to the destination hospital
 - % of patients with suspected stroke, treated and transported who had a documented LKW time

Definitions

Acute Stroke – a patient suspected of having an acute cerebral ischemic event or stroke with the onset of any one symptom within the specified time frame

Designated Stroke Center – a hospital that achieved Primary Stroke Center Certification by the JC or equivalent accrediting body



Document History

Triennial Update by TEMS Council STEMI Committee
Original – 2010; Adopted 12/2010
Revised and Readopted 09/2012
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Revised and Readopted 12/2018
Revised and Readopted 03/2021