



# STROKE AND LVO STROKE EMS TRIAGE AND DESTINATION PLAN

## Stroke Patient

- Signs and symptoms of an acute Stroke identified on EMS Stroke Screen Assessment.

### Last Known Well (LKW)

- Refer to UP 14 Suspected Stroke Protocol

## The Purpose of this plan:

- Use plan in conjunction with UP 14 Suspected Stroke Protocol
- Rapidly identify acute Stroke patients presenting to EMS system and minimize the time from Stroke onset to definitive care
- Rapidly identify most appropriate facility destination in region
- Provide quality EMS service and patient care to the EMS system's citizens
- Maintain performance improvement of the EMS system based on NC Stroke Performance measures

Stroke Screening Tool

**FAST-ED**

LVO Suspected Score:

**7 OR GREATER**

Stroke Screen/Severity Tool

**FAST-ED**

Positive Stroke Screen Tool  
and/or  
Positive Stroke Screen/  
Stroke Severity Tool

Last Known Well  
Greater than  
24 Hours

YES

Transport to Destination A or B:  
Nearest facility or certified stroke center  
honoring patient/family preference

NO

LVO Suspected  
Stroke Severity Score  
Greater than/equal to  
**7**

YES

Contraindications  
to fibrinolysis?  
*Reperfusion Checklist Or  
See box →*

YES

Regional Stroke Centers Criteria  
Absolute Contraindications to fibrinolysis:

- History of CNS structural disease
- Closed head or facial trauma (*last 3 months*)
- Major trauma or surgery (*last 6 weeks*)
- GI bleeding (*last 6 weeks*)
- History of bleeding or clotting disorders
- Patient takes blood thinners
- Pregnancy
- Advanced/terminal systemic disease

NO

Last Known Well  
Greater than  
4.5 hours

YES

Transport to Destination B

May transport to Destination A  
• If estimated transport time to Destination B  
is greater than **45** minutes

NO

Transport to Destination A

May transport to Destination B  
• If estimated transport time to Destination A  
is greater than **30** minutes  
**AND**  
• If total time from LKW and transport time will  
not exceed 4 hours by facility arrival

### DESTINATION A

Rapid / Early Notification of receiving facility  
Activation of Stroke Team  
Nearest Certified Stroke Center and/or  
patient/family preference

Atrium Health Union  
Atrium Health Union West  
Atrium Health Pineville  
Novant Health Matthews  
Novant Health Mint Hill

Atrium Health Waxhaw  
Atrium Health Providence  
Atrium Health Anson  
Atrium Health Stanly

### DESTINATION B

Rapid / Early Notification of receiving facility  
Activation of Stroke Team  
Thrombectomy Capable Stroke Center (TSC)  
Comprehensive Stroke Center (CSC)

Atrium Health CMC  
Novant Health Presbyterian Main  
Atrium Health Cabarrus

Stroke EMS Triage and Destination Plan



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SEE NEXT PAGE FOR FAST-ED SCORING CHECKLIST

## Pearls

- Use the AHA resource document for assistance on transport decision-making:  
<https://www.ahajournals.org/doi/10.1161/STROKEAHA.120.033228>
- Agencies may reconfigure this document to align with EMS and regional stroke care resources.
- If unstable airway or unstable hemodynamic condition may divert transport to closest appropriate facility.
- All Stroke patients should be triaged and transported using this plan.
- Expectation: EMS agency will collaborate with their regional stroke resources to establish point-to-point and inter-facility transport workflows for patient requiring higher level of acute care in consideration of potential EMS system impact and regional approach to stroke care.
- **Stroke Severity/Large Vessel Occlusion (LVO) Tool and Score:**  
Score severity and LVO score level should be set based on collaboration with all stroke centers where EMS agency routinely transports in the region. Majority of strokes are NOT large vessel occlusion strokes and inappropriately low severity scores can result in an over-triage of patients to TSC / CSC negatively impacting both the EMS and healthcare system.
- **EMS Transport Times in Destination Decisions:**  
EMS Transport times should be set based on collaboration with all stroke centers where EMS agency routinely transports in the region.
- **Reperfusion Checklist and contraindications to fibrinolysis in acute stroke patients:**  
Systems may use the Reperfusion Checklist or may establish regionally agreed upon absolute contraindications.
- Many EMS systems have a variety of stroke certified medical facilities within similar transport time parameters.
- Destination choices should use regional stroke system of care plans and patient/family preferences in choosing most medically appropriate facility.
- **Modality of transport in acute stroke depends on multiple factors, but safest and fastest should be considered, whether ground EMS, air medical EMS, or specialty/critical care ground transport.**  
Consider air medical transport options when no Comprehensive or Thrombectomy Capable Stroke Centers are within a 60 minute total transport time.
- **Acute Stroke-Ready Hospital Components:**  
Director of stroke care, written emergency stroke care protocols and transfer agreements with a neurosurgical capable hospital, 24-hour CT capability, and ability to administer thrombolytics.  
Facility may have Telemedicine / Telestroke capability for consultation with neurologic specialist.
- **Primary Stroke Center:**  
Has same capabilities as Acute Stroke-Ready Hospital.  
Accredited and certified by the Joint Commission.
- **Thrombectomy-Capable Stroke Center:**  
Has same capabilities as Primary Stroke Center.  
Capable of providing mechanical thrombectomy with no day or hour limitation.
- **Comprehensive Stroke Center:**  
Has same capabilities as a Primary Stroke Center.  
Capable of offering full spectrum, state-of-the art Stroke care with no day or hour limitation.  
Ability to treat stroke patients with catheter-based procedures to remove or dissolve blood clots.  
Accredited and certified by the Joint Commission.
- **Guidelines only for prioritization of hospital choices based on capabilities:**  
Prioritize rural hospitals that have formal agreements with Comprehensive Stroke Center or Thrombectomy-Capable Stroke Center with access to expert stroke consultation.  
Prioritize rural hospitals with stroke center certification and/or those actively engaged in stroke center certification and who track their performance on evidenced-based stroke care.  
Prioritize Primary Stroke Centers over Acute Stroke Ready Hospitals when total transport time is < 30 minutes difference.  
Prioritize Comprehensive Stroke Center over Thrombectomy-Capable Stroke Center when total transport time is < 30 minutes difference.



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## FAST-ED SCALE

(Field Assessment Stroke Triage for Emergency Destination)

ITEM	FAST-ED SCORE
<b>FACIAL PALSY – ask the patient to show their teeth or smile</b>	
Normal or minor paralysis	0
Partial or complete paralysis	1
<b>ARM WEAKNESS – ask patient to extend both arms with palms up, eyes closed, and hold for 10 seconds</b>	
No drift	0
Drift or some effort against gravity	1
No effort against gravity or no movement	2
<b>SPEECH CHANGES – ask patient to repeat a phrase</b>	
Absent	0
Mild to moderate	1
Severe, global aphasia, or mute	2
<b>EYE DEVIATION – ask the patient to follow your finger from side to side with their eyes</b>	
Absent	0
Partial	1
Forced deviation	2
<b>DENIAL/NEGLECT (Do not perform if expressive or receptive aphasia is present)</b>	
Ask the patient <i>“Do you feel weakness in this arm/leg?”</i>	
Patient <b>recognizes</b> weakness in their weak extremity	0
Patient <b>does NOT recognize</b> weakness in their weak extremity	1
Show the patient their weak extremity and ask, <i>“Whose arm/leg is this?”</i>	
Patient <b>recognizes</b> their weak extremity	0
Patient <b>does NOT recognize</b> their weak extremity	1
<b>TOTAL</b>	