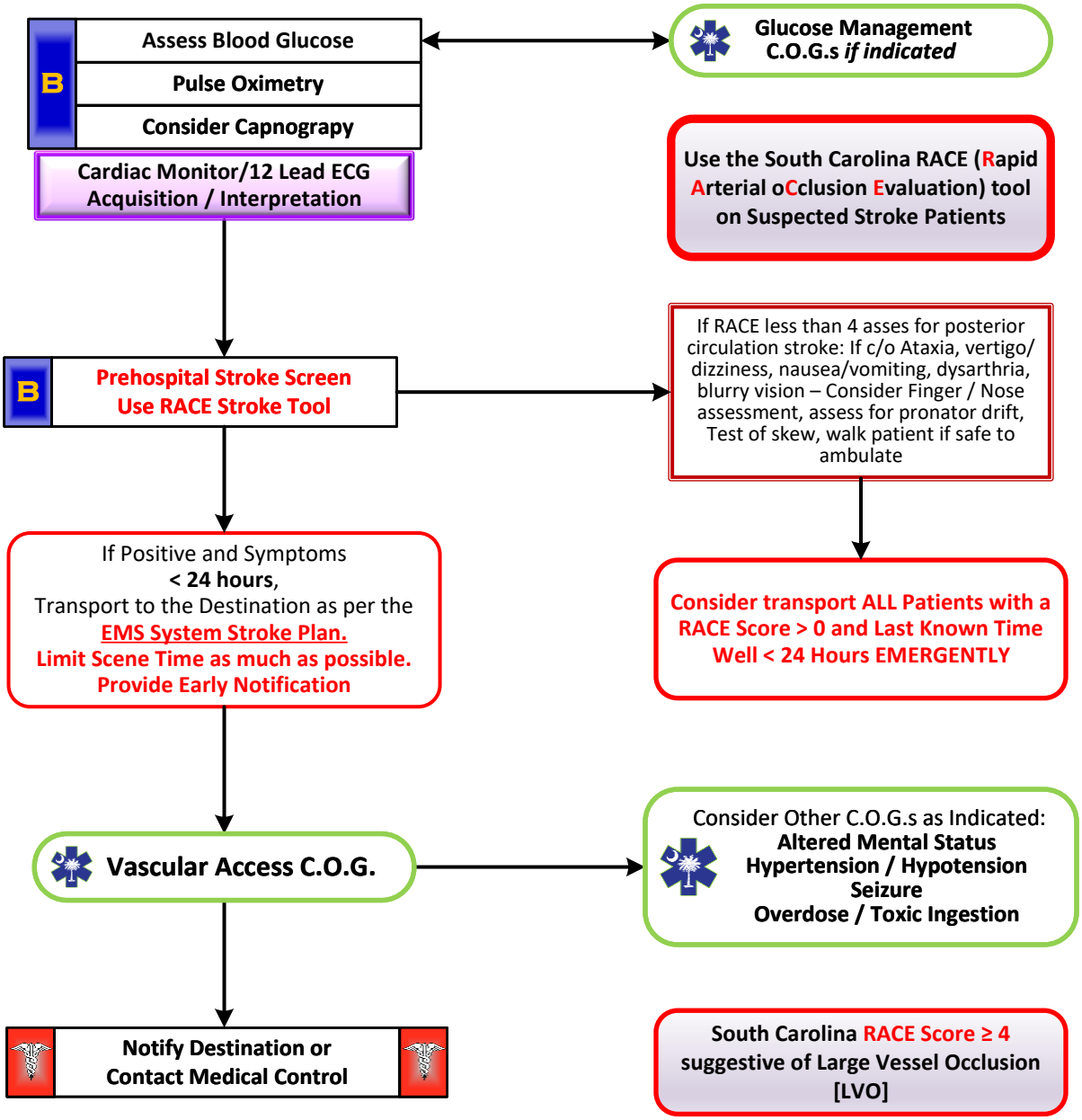
Suspected Stroke

History
- Prior Stroke / TIA
- Previous cardiac / vascular surgery
- Associated diseases: diabetes, hypertension, CAD
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

Signs and Symptoms
- Altered mental status
- Weakness / Paralysis
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Posterior Circulation
  - Loss of Balance
  - Loss of Coordination
  - Difficulty Walking
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension / hypotension

Differential
- See Altered Mental Status
- TIA (Transient ischemic attack)
- Seizure
- Hypoglycemia
- Tumor
- Trauma



ADULT CARDIOVASCULAR

Suspected Stroke

PEARLS

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro**
- **RACE is based on Acute Non-Traumatic Symptoms ONLY.**
- **ALL RACE SCORES > 0 are indicative of Stroke.**
- **RACE SCORE ≥ 4 is INDICATIVE of Large Vessel Occlusion (LVO) Stroke that may benefit from interventional procedures.**
- **The Reperfusion Checklist should be completed for any suspected stroke patient. With a duration of symptoms of less than 24 hours, scene times should be limited to 10 minutes, early destination notification/activation should be provided and transport times should be minimized based on the EMS System Stroke Plan.**
- **Onset of symptoms** is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free)
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Consider the possibility of Posterior Circulation Stroke – Particularly in younger patients.
- If RACE less than 4 assess for posterior circulation stroke: If c/o Ataxia, vertigo/dizziness, nausea/vomiting, dysarthria, blurry vision – Consider Finger / Nose assessment, assess for pronator drift, Test of skew, walk patient if safe to ambulate
- Maintain Head of Bed elevation at 15 – 30 degrees.
- Elevated blood pressure is commonly present with stroke. Consider treatment per Hypertensive Protocol.
- Be alert for airway problems (swallowing difficulty, vomiting/aspiration).
- Hypoglycemia can present as a localized neurologic deficit.
- Document the Stroke Screen results in the ePCR.
- Document the 12 Lead ECG as a procedure in the ePCR.
- **KEY DOCUMENTATION ELEMENTS**
  - ❑ "Last known well" must be specific
  - ❑ If the patient was last known well prior to bedtime the night before, that time is the time to be documented (not time the patient woke up with symptoms present)
  - ❑ Blood glucose results
  - ❑ Specific validated stroke scale used and findings
  - ❑ *** R.A.C.E Scoring is mandatory for South Carolina EMS for Suspected Stroke Patients**
  - ❑ Time of notification to receiving hospital
- **KEY PERFORMANCE MEASURES**
  - ❑ Documentation of time "last known well"
  - ❑ Use of validated stroke scale
  - ❑ Blood glucose level obtained
  - ❑ Minimize EMS scene time
  - ❑ Hospital stroke team pre-arrival alert or activation occurred as early as possible after positive stroke assessment finding

Suspected Stroke
R. A. C. E. Score

SC EMS R. A. C. E. Stroke Scale
Rapid **A**rterial o**C**clusion **E**valuation Scale

ITEM	Instruction	RESULT	SCORE
Facial Palsy	Ask Patient to show their teeth (Smile)	**Absent:** Symmetrical movement	**0**
		Mild: Slightly Assymetrical	**1**
		Moderate To Severe: Completely Assymetrical	**2**
Arm Motor Function	Extending the arm of the patient 90 deg(if sitting) or 45 deg (if supine) palms up	**Normal to Mild:** Limb upheld > 10 seconds	**0**
		Moderate: Limb upheld < 10 seconds	**1**
		Severe: Patient unable to raise arm against gravity	**2**
Leg Motor Function	Extending the leg of the patient 30 deg (in supine position) One Leg at a time	**Normal to Mild:** Limb upheld > 5 seconds	**0**
		Moderate: Limb upheld < 5 seconds	**1**
		Severe: Patient unable to raise leg against gravity	**2**
*Head & Gaze Deviation	Observe range of motion of eyes and look for head turning to one side	**Absent:** Normal Eye Movements ot both sides and no head deviation observed	**0**
		Present (Eyes and/or head deviation to one side observed	**1**
*Aphasia (IF patient has RIGHT sided weakness)	As Patient to follow two simple commands: ***1. Close Your Eyes. 2. Make a Fist***	**Normal:** Performs both tasks correctly	**0**
		Moderate: Performs only 1 of 2 tasks correctly	**1**
		Severe: Cannot perform either task	**2**
*Agnosia (If Patient has LEFT sided weakness)	Inability to recognize familiar objects. Ask patient: ***1. "Whose arm is this?"*** (while showing the affected arm). ***2. "Can you move your arm?"***	**Normal:** Appropriate or correct answer	**0**
		Moderate: Does not recognize limb or states that they can move it - but cannot	**1**
		Severe: Does not recognize arm or is unaware of arm	**2**
*Head/Eye Gaze Deviation or if patient is mute and does not follow commands = HIGH Likelihood of Large Vessel Occlusion (LVO		**RACE SCALE TOTAL = 9**	
		Maximum RACE Score = 9	
		ANY Score > 0 is a "Stroke Alert"	
		ANY Score > or = 4 is LIKELY LVO	
KEY CHECK POINTS:	□ **Emergency Contact**		
	□ **Last Known Well (Normal) Time**		
	□ **Medication List**		

ADULT CARDIOVASCULAR

Suspected Stroke

REPERFUSION CHECKLIST

The Reperfusion Checklist is an important component in the initial evaluation, treatment, and transport of patients suffering from an acute ST-elevation myocardial infarction (STEMI) or acute Stroke. Both of these conditions can be successfully treated using fibrinolysis (thrombolytics) if the patient arrives at the appropriate hospital within the therapeutic window of time.

This form should be completed for all acute STEMI and acute Stroke patients.

Patient's Name			
ePCR Number:			**Date:**
☐ **YES**	☐ **NO**	1. **Has the patient experienced chest discomfort for greater than 15 minutes and less than 12 hours?**	
☐ **YES**	☐ **NO**	2. **Has the patient developed a sudden neurologic deficit with a positive R.A.C.E. Stroke Screen?**	
3. **Are there any contraindications to fibrinolysis**			
If any of the following are checked "YES" – fibrinolysis MAY be contraindicated			
☐ **YES**	☐ **NO**	Systolic Blood Pressure greater than 180 mm Hg	
☐ **YES**	☐ **NO**	Diastolic Blood Pressure greater than 110 mm Hg	
☐ **YES**	☐ **NO**	Right vs. Left Arm Systolic Blood Pressure difference of greater than 15 mm	
☐ **YES**	☐ **NO**	History of structural Central Nervous System disease (tumors, masses, hemorrhage, etc.)	
☐ **YES**	☐ **NO**	Significant closed head or facial trauma within the previous 3 months	
☐ **YES**	☐ **NO**	Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding	
☐ **YES**	☐ **NO**	Bleeding or clotting problem or on blood thinners	
☐ **YES**	☐ **NO**	CPR performed greater than 10 minutes	
☐ **YES**	☐ **NO**	Currently Pregnant	
☐ **YES**	☐ **NO**	Serious Systemic Disease such as advanced/terminal cancer or severe liver or kidney failure	
4. **STEMI Patients Only – Does the patient have severe heart failure or cardiogenic shock?**			
These patients may benefit more from a percutaneous coronary intervention (PCI) capable hospital			
☐ **YES**	☐ **NO**	Presence of pulmonary edema (rales greater than halfway up lung fields)	
☐ **YES**	☐ **NO**	Systemic hypoperfusion (cool and clammy)	

<u>If any contraindication is checked as "Yes" and an acute Stroke is suspected by exam or a STEMI is confirmed by ECG, activate the EMS Stroke Plan or EMS STEMI Plan for fibrinolytic ineligible patients.</u>

This may require the EMS Agency, an Air Medical Service, or a Specialty Care Transport Service to transport directly to a specialty center capable of interventional care within the therapeutic