Stroke Guideline

**History**
- Previous CVA, TIAs
- 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
- Acute focal neuro deficit
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension / hypotension

**Differential**
- See Altered Mental Status
- TIA (Transient ischemic attack)
- Seizure
- Todd’s Paralysis
- Hypoglycemia
- Stroke
- Tumor
- Trauma
- Dialysis / Renal Failure

**Severity-Based Stroke Triage Algorithm for EMS**

1. EMS Dispatch notifies responding EMS Unit of possible stroke call. EMS crew dispatched per regional stroke protocol or on scene suspicion of acute stroke by EMS providers.
2. Upon arrival: Provide any needed ABC interventions, request dispatch of higher level of provider if necessary for unstable patients and interview patient, family and other witnesses.
3. Perform and document results of pre-hospital stroke identification screen (CPSS, LAPSS, etc.) and POCS blood glucose IV and EKG.
4. STROKE SCREEN POSITIVE? STROKE SUSPECTED?
   - YES: LVO SUSPECTED? (RACE >5)
   - NO: Transport to CSC will not preclude use of IV alteplase?
5. LVO LESS THAN 6 HOURS?
   - YES: DIRECT TRANSPORT TO CSC ADDS LESS THAN OR EQUAL TO 15 MINUTES?
   - NO: Call stroke alert, pre-notify receiving facility and transport to the closest appropriate stroke center (ASRH, PSC, CSC) per your regional stroke systems of care policy.
6. Transport to CSC adds less than or equal to 15 minutes?
   - YES: Treat and transport as indicated per patient presentation.
   - NO: Stroke not suspected.
Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro

Time of Onset or Last Seen Normal: Interview patient, family members, and other witnesses to determine Last Known Well (LKW) time and time of Symptom Discovery.

Be very precise in gathering data to establish the time of onset and report as an actual time (i.e. 13:47 NOT “about 45 minutes ago.”) Without this information patient may not be able to receive thrombolytics at facility.

For patients with “Woke up and noticed stroke,” Time starts when patient went to sleep or was last awake and was last known normal.

Attempt to identify possible stroke mimics (eg. Seizure, migraine, intoxication) and determine if patient has pre-existing substantial disability (need for nursing homecare or inability to walk without help from others).

Encourage family to go directly to Emergency Department if not transported with patient and obtain mobile number of next of kin and witnesses

Patients who are eligible for IV Alteplase if transported to nearest Acute Stroke Ready Hospital (ASRH) or PSC should not be rerouted to a CSC or Endovascular Treatment-capable Center if doing so would result in delay that would make them ineligible for IV Alteplase

Air Medical: Important for EMS to be aware of role of air medical. May be needed to transfer a stroke patient to a geographically distant hospital that is capable of providing an advanced level of stroke care.

With a duration of symptoms of less than 3.5 HOURS or UNDETERMINED, scene times should be limited to ≤ 15 minutes and the patient should be transported to capable stroke receiving facility. In-field notification of receiving facility should be performed and transport times should be minimized.

Collect a list of current medications (especially anticoagulants) and obtain patient history including co-morbid conditions (eg. Serious kidney or liver disease, recent surgery, procedures or stroke) that may impact treatment decisions.

Cincinnati Pre-hospital Stroke Scale

1. FACIAL DROOP: Have patient show teeth or smile.
   - Normal: both sides of the face move equally
   - Abnormal: one side of the face does not move as well as the other side

2. ARM DRIFT: Patient closes eyes & holds both arms out for 10 sec.
   - Normal: both arms move the same or both arms do not move at all
   - Abnormal: one arm does not move or drifts down compared to the other

3. ABNORMAL SPEECH: Have the patient say “you can’t teach an old dog new tricks.”
   - Normal: patient uses correct words with no slurring
   - Abnormal: patient slurs words, uses the wrong words, or is unable to speak

INTERPRETATION: If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Instruction</th>
<th>Result</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Palsy</td>
<td>Ask patient to show their teeth (smile)</td>
<td>Absent (symmetrical movement)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mild (slight asymmetrical)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate to Severe (completely asymmetrical)</td>
<td>2</td>
</tr>
<tr>
<td>Arm Motor Function</td>
<td>Extending the arm of the patient 90° (if sitting) or 45° (if supine)</td>
<td>Normal to Mild (limb upheld more than 10 seconds)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate (limb upheld less than 10 seconds)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe (patient unable to raise arm against gravity)</td>
<td>2</td>
</tr>
<tr>
<td>Leg Motor Function</td>
<td>Extending the leg of the patient 30° (in supine)</td>
<td>Normal to Mild (limb upheld more than 5 seconds)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate (limb upheld less than 5 seconds)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe (patient unable to raise leg against gravity)</td>
<td>2</td>
</tr>
<tr>
<td>Head &amp; Gaze Deviation</td>
<td>Observe eyes and head deviation to one side</td>
<td>Absent (eye movements to both sides were possible and no head deviation was observed)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present (eyes and head deviation to one side was observed)</td>
<td>1</td>
</tr>
<tr>
<td>Aphasia (R side)</td>
<td>Difficulty understanding spoken or written words. Ask patient to follow two simple commands: 1. Close your eyes. 2. Make a fist.</td>
<td>Normal (performs both tasks requested correctly)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate (performs only 1 of 2 tasks requested correctly)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe (Cannot perform either task requested correctly)</td>
<td>2</td>
</tr>
<tr>
<td>Agnosia (L side)</td>
<td>Inability to recognize familiar objects. Ask patient: 1. “Whose arm is this?” (while showing the affected arm) 2. “Can you move your arm?”</td>
<td>Normal (recognizes arm, and attempts to move arm)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate (does not recognize arm or is unaware of arm)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe (does not recognize arm and is unaware of arm)</td>
<td>2</td>
</tr>
</tbody>
</table>

If RACE > 5, consider Comprehensive Stroke Center

RACE SCALE TOTAL

Guideline 1

If RACE > 5, consider Comprehensive Stroke Center