**Stroke/TIA**

For suspected stroke or transient ischemic attack (stroke symptoms that resolve rapidly)

**History**
- Last seen normal
- A&O Status and GCS
- Family members phone number
- Previous stroke or TIA or brain hemorrhage
- Major surgery within last 2 weeks
- Signs of active bleeding, including Melena
- Associated diseases (DM, HTN, CAD)
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma
- History of brain tumor, aneurysm, or AVM.

**Signs and Symptoms**
- Altered mental status
- Weakness or paralysis
- Blindness or other sensory loss
- Aphasia or dysarthria
- Syncope
- Vertigo or dizziness
- Vomiting
- Headache
- Seizure
- Respiratory pattern change
- Hypertension/hypotension
- Diplopia or double vision

**Differential**
- See Altered Mental Status
- TIA
- Seizure/Todd's paralysis
- Hypoglycemia
- Stroke
  - Thrombotic or embolic (~85%)
  - Hemorrhagic (~15%)
- Tumor
- Trauma
- Dialysis or renal failure
- Bell's Palsy

**Differential Diagnosis**
- See Altered Mental Status
- TIA
- Sepsis
- Seizure/Todd's paralysis
- Hypoglycemia
- Stroke
  - Thrombotic or embolic (~85%)
  - Hemorrhagic (~15%)
- Tumor
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- Vomiting
- Headache
- Seizure
- Respiratory pattern change
- Hypertension/hypotension
- Diplopia or double vision

**Recent signs and symptoms consistent with Stroke**

**Perform Cincinnati Prehospital Stroke Scale (CPSS)**

- If CPSS screening is positive, then perform mNIHSS (if trained)
- Temperature measurement
- Blood glucose analysis
- Cardiac monitor
- Establish IV
  - Consider one 18g or larger IV or saline lock in each AC

**CINCINNATI PREHOSPITAL STROKE SCALE**

- Consistent with acute Stroke?
  - Yes
  - Temperature measurement
  - Blood glucose analysis
  - Cardiac monitor
  - Establish IV
    - Consider one 18g or larger IV or saline lock in each AC
  - Do NOT declare a Stroke Alert.

- No
  - Consider other causes
  - Monitor and reassess

**Time of onset OR last known well time is < 24 hours?**

- Yes
  - **Declare a Stroke Alert**
  - Stroke/CVA/TIA - MSU

- No
  - **Initiate Transport to Closest Primary Stroke Center if < 3.5 hours OR > 9 hours.**
  - Closest Thrombectomy or Comprehensive Stroke Center if between ≥ 3.5 and ≤ 9 hours.
  - Keep scene time < 10 minutes
  - If available, transport a family member or guardian with patient.

**Notify receiving facility. Consider Base Hospital for medical direction**

**Primary Stroke Centers**
- Kaiser South San Francisco
- Sequoia Hospital
- Mills-Peninsula
- Kaiser Redwood City
- Stanford Hospital

**Thrombectomy Capable Stroke Centers**
- Mills-Peninsula

**Comprehensive Stroke Centers**
- Kaiser Redwood City
- Stanford Hospital

**Effective April 2024**

**Effective November 2018**

**Treatment Protocol** A34
A Stroke Alert is indicated when the Cincinnati Prehospital Stroke Scale findings are abnormal and onset (time last seen normal) is less than 24 hours from time of patient contact. Make hospital contact following the format described in Routine Medical Care G01 for Stroke.

If a family member or guardian is available, assure their availability by either transporting them in the ambulance or obtain their name and phone number to allow the receiving physician to contact them. Encourage a family member to be available to speak with hospital staff.

- If any portion of the Cincinnati Prehospital Stroke Scale is abnormal and it is a new finding, the stroke screen is positive and may indicate an acute stroke.
- Early hospital notification is necessary for the receiving facility to make rapid treatment and potential transfer decisions.
- Because the patient may need to receive thrombolytic therapy, avoid multiple IV attempts.
- Avoid distal placement of IVs, if possible, as this is a preferred access site by Interventionalists.
- When turning over patient care to hospital staff, make sure to include common anticoagulants taken by the patient. Known use of these medications may affect the course of hospital treatment:
  - Warfarin (Coumadin)
  - Heparin
  - Fondaparinux (Arixtra)
  - Apixaban (Eliquis)
  - Enoxaparin (Lovenox)
  - Dabigatran (Pradaxa)
  - Rivaroxaban (Xarelto)

Cincinnati Prehospital Stroke Scale

<table>
<thead>
<tr>
<th>Finding</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial Droop</td>
<td>Normal: Symmetrical smile or face</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Asymmetry</td>
</tr>
<tr>
<td>Arm Weakness</td>
<td>Normal: Both arms move symmetrically</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Asymmetrical arm movement</td>
</tr>
<tr>
<td>Speech Abnormality</td>
<td>Normal: Correct words; no slurring</td>
</tr>
<tr>
<td></td>
<td>Abnormal: Slurred or incorrect words</td>
</tr>
</tbody>
</table>

Supplementary Table 2: The Modified National Institutes of Health Stroke Scale (mNIHSS)

<table>
<thead>
<tr>
<th>Total Item Description</th>
<th>Response &amp; Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOC (orientation)</td>
<td></td>
</tr>
<tr>
<td>E. Left</td>
<td>6</td>
</tr>
<tr>
<td>N. Right</td>
<td>1</td>
</tr>
<tr>
<td>E. Right</td>
<td>1</td>
</tr>
<tr>
<td>N. Left</td>
<td>2</td>
</tr>
<tr>
<td>N. Right</td>
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<tr>
<td>Speech Test</td>
<td></td>
</tr>
<tr>
<td>E. Left</td>
<td>6</td>
</tr>
<tr>
<td>N. Right</td>
<td>6</td>
</tr>
<tr>
<td>Language Test</td>
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<td>E. Left</td>
<td>3</td>
</tr>
<tr>
<td>N. Right</td>
<td>3</td>
</tr>
<tr>
<td>Language</td>
<td></td>
</tr>
<tr>
<td>Aura</td>
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</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Effective April 2024

Treatment Protocol A34
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Pearls

- MSU-1 should be alerted if you arrive on scene and determine a stroke is occurring. Based on ETA, MSU-1 will meet on scene, at rendezvous, or advise not responding and will recommend transport to the closest, most appropriate SRC.
- Last known well time: Critical information that prehospital providers can obtain, on which all treatment decisions are based. Be very precise in gathering data to establish the time of onset and report as an actual time (i.e., “13:45,” NOT “about 45 minutes ago”). Without this information, patients may not receive thrombolytics at the hospital. For patients who “woke up and noticed stroke symptoms,” time starts when the patient was last awake.
- If there is any question as to status of patient with acute symptoms of stroke, transport to Primary Stroke Center.
- If last know well time is unknown or > 24 hours, transport to closest or requested Primary, Thrombectomy Capable, or Comprehensive Stroke Center.
- The differential listed in A04 – Altered Level of Consciousness should also be considered.
- Be alert for airway problems (difficulty swallowing, vomiting and aspiration). PO meds are not appropriate.
- Hypoglycemia or hyperglycemia can present as a LOCALIZED neurologic deficit, especially in the elderly.
- Document the Cincinnati Prehospital Stroke Scale in the EHR.