Stroke/CVA/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 dysarthia
- Syncope
- Vertigo or dizziness
- Vomiting
- Headache
- Seizure
- Respiratory pattern change
- Hypertension/hypotension
- Diplopia or double vision

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

Recent signs and symptoms consistent with Stroke → CT-1 in Range? → Activate CT-1 (if not already responding)

E	Perform Cincinnati Prehospital Stroke Scale (CPSS)
	If CPSS screening is positive, then perform mNIHSS (if trained)
	Temperature measurement (↔ **Sepsis**)
O	Blood glucose analysis (↔ **Hypoglycemia**, **Hyperglycemia**)
P	Cardiac monitor
	Establish IV *Consider one 18g or larger IV or saline lock in each AC*

CINCINNATI PREHOSPITAL STROKE SCALE consistent with acute Stroke?

No →

E	Consider other causes
	Monitor and reassess

→ Notify receiving facility.

Yes ↓

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

Yes → ***Declare a Stroke Alert*** → **Stroke/CVA/TIA - MSU** *if indicated* → Transport

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
Seton Medical Center
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

Stroke/CVA/TIA

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

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 of 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	
Finding	**Interpretation**
Facial Droop	Normal: Symmetrical smile or face **Abnormal: Asymmetry**
Arm Weakness	Normal: Both arms move symmetrically **Abnormal: Asymmetrical arm movement**
Speech Abnormality	Normal: Correct words; no slurring **Abnormal: Slurred or incorrect words**

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

Tested Item Description		Responses & Scores	
1B	LOC (orientated questions)	0 1 2	Answers both correctly Answers one correctly Answers neither correctly
1C	LOC (response to commands)	0 1 2	Performs both tasks correctly Performs one task correctly Performs neither
2	Gaze	0 1 2	Normal horizontal movements Partial gaze palsy Complete gaze palsy
3	Bidang visual	0 1 2 3	No visual field defect Partial hemianopia Complete hemianopia Bilateral hemianopia
5	Motor function (arm) a. Left b. Right	0 1 2 3 4	No drift Drift before 5 seconds Falls before 10 seconds No effort against gravity No movement
6	Motor function (leg) a. Left b. Right	0 1 2 3 4	No drift Drift before 5 seconds Falls before 5 seconds No effort against gravity No movement
8	Sensory	0 1	Normal Abnormal
9	Language	0 1 2 3	Normal Mild aphasia Severe aphasia Mute or global aphasia
11	Neglect	0 1 2	Absent Mild (loss 1 sensory modality) Severe (loss 2 modalities)
TOTAL (0–31)			

Pearls

- Acute stroke care is evolving rapidly.
- CT-1 should be alerted if you arrive on scene and determine a stroke is occurring. Based on their ETA, decide if waiting on scene, rendezvous, or transport to the hospital is what is best for the patient. Discussion with MSU can help with this decision.
- Time last known well: One of the most important items that prehospital providers can obtain, on which all treatment decisions are based. Be <u>very precise</u> 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 be able to receive thrombolytics at the hospital. For patients who "woke up and noticed stroke symptoms," time starts when the patient was last awake.
- The differential listed on the Altered Mental Status TP 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 ePCR.