REGION 11 CHICAGO EMS SYSTEM PROTOCOL	Title: Stroke – BLS/ALS
	Section: Cardiovascular
	Approved: EMS Medical Directors Consortium
	Effective: December 6, 2023

STROKE – BLS/ALS

I. PATIENT CARE GOALS

1. Detect neurological deficits.
2. Determine eligibility for transport to a Stroke Center.
3. Identify patients who have potentially sustained a severe stroke that may involve a large vessel occlusion (LVO) and transport to a Comprehensive Stroke Center (CSC).

II. PATIENT PRESENTATION

A. Neurologic deficit such as facial droop, localized weakness, gait disturbance, slurred speech, altered mentation, sudden onset of dizziness/vertigo

B. Hemiparesis or hemiplegia

C. Gaze preference

D. Severe headache, neck pain/stiffness, double vision or complete persistent visual loss

III. PATIENT MANAGEMENT

A. Assessment

1. Screen for a stroke using the **<u>Cincinnati Prehospital Stroke Scale (CPSS):</u>**

<u>Facial Droop</u> - Have patient show teeth or smile
- Normal = Both sides of the face move equally
- Abnormal = One side of the face does not move at all

<u>Arm Drift</u> - Have patient close eyes and hold arms out for 10 seconds with palms up
- Normal = Both arms move equally or not at all
- Abnormal = One arm drifts compared to the other

<u>Speech</u> - Have patient say, “You can’t teach an old dog new tricks”
- Normal = Patient uses correct words with no slurring
- Abnormal = Slurred or inappropriate words or mute

<u>For a patient with a suspected stroke and an abnormal CPSS, or if unable to obtain a CPSS, assess stroke severity with 3-Item Stroke Scale.</u>

2. Evaluate stroke severity using the **<u>3-Item Stroke Scale (3I-SS):</u>**

   The 3I-SS is scored 0-6. Assign a score from 0 to 2 for each of the three parts of the assessment. Add each section for the total score.

   <u>Level of Consciousness (AVPU)</u>
   0 = Alert
   1 = Arousable to voice only
   2 = Arousable to noxious stimuli only, or unresponsive

   <u>Gaze Preference</u>
   0 = Normal eye movements
   1 = Prefers to look to one side, but can move eyes to both sides
   2 = Eyes are fixed in one direction

   <u>Motor Function</u>
   0 = Normal strength in arms and legs
   1 = Can lift arm or leg, but cannot hold arm/leg up for 10 seconds
   2 = None or minimal movement of arm or leg

3. Pertinent historical data includes:

   a. History – “last known well” and source of that information
   b. Baseline neurologic status assessment
   c. Assess if the patient is taking warfarin or any anticoagulant medication
   d. History of recent trauma
   e. History of recent seizure
   f. History of recent surgery
   g. History of recent hemorrhage (e.g., GI bleed)

4. Evaluate for the presence of potential stroke mimics including:

   a. Hypoglycemia
   b. Seizure
   c. Sepsis
   d. Migraine
   e. Intoxication

B. Treatment and Interventions

1. Determine “last known well” time.

2. Administer oxygen as appropriate with a target of achieving 94–98% saturation.

3. If seizure activity present, treat per <u>Seizure Protocol</u>.

4. Check blood glucose level and treat hypoglycemia per protocol if glucose less than 60 mg/dL.
5. If ALS, apply cardiac monitor and obtain 12-lead ECG.
6. Contact Online Medical Control and provide notification of stroke patient arrival.

III. NOTES/EDUCATIONAL PEARLS

A. Key Considerations

1. Transport and destination decisions should be based on the Stroke System of Care. Destination hospitals include:
   a. Primary Stroke Center
   b. Comprehensive Stroke Center
2. Time of onset of stroke or last known well is critical data for patient treatment and transport decision.
3. Obtain contact information of family or bystander with patient to provide stroke center team information on baseline and last known well time.
4. Do not treat hypertension.
5. Pediatrics
   a. Although rare, pediatric patients can have strokes.
   b. Signs and symptoms of acute stroke in children are similar to those in adults.
   c. The most common symptoms include hemiparesis and facial droop, speech or language disturbance, vision disturbance, and ataxia.
   d. Children may also present with non-localizing symptoms such as headache, altered mental status, or seizure.
   e. Newborn infants have the highest risk and often present with focal motor seizures.
   f. Follow appropriate pediatric treatment protocols.
   g. Stroke scales are not validated for pediatric patients.
   h. Contact Online Medical Control.
   i. Transport suspected Pediatric Stroke patients to a Pediatric Critical Care Center (PCCC) per Pediatric Patient Destination Policy.

B. Key Documentation Elements

1. “Last known well” must be specific.

   a. If the patient was last known well prior to bedtime the night before, this is the time to be documented (not time the patient woke up with symptoms present).

2. Blood glucose results.

3. Specific stroke screen and scale used (CPSS and 3I-SS) along with the findings.

4. Time of “Stroke pre-arrival alert” notification to receiving hospital.

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STROKE – BLS/ALS

Initial Assessment Protocol

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Perform stroke screening with Cincinnati Prehospital Stroke Scale (CPSS)[1]

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For a patient with a suspected stroke and an abnormal CPSS, or if unable to obtain a CPSS, assess stroke severity with 3-Item Stroke Scale (3I-SS)[2]

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Check blood sugar and treat appropriately

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Determine last known well time

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- Patients with a 3I-SS score of 4 or more and have a last known well time of less than 24 hours OR an unknown last known well time shall be transported to the closest Comprehensive Stroke Center (CSC)
- Patients with a 3I-SS score of 3 or less shall be transported to the closest stroke center
- Patients with a 3I-SS score of 4 or more and a last known well time greater than 24 hours should be transported to the closest stroke center

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Contact Online Medical Control for all suspected stroke patients
Document time of prehospital notification of "Stroke Pre-Arrival Alert"

1) Cincinnati Prehospital Stroke Scale (CPSS)

Positive CPSS = One or more of the following are abnormal:

1. Facial Droop
- Have patient show teeth or smile
- Abnormal = One side does not move as the other

2. Arm Drift
- Have patient close eyes and hold arms out for 10 seconds with palms up
- Abnormal = One arm does not move or drifts down

3. Abnormal Speech
- Have patient say, "You can't teach an old dog new tricks"
- Abnormal = Patient slurs word, uses wrong words or is unable to speak

2) 3-Item Stroke Scale (3I-SS)

The 3I-SS is scored 0-6. Assign a score from 0 to 2 for each of the three parts of the assessment. Add each section for the total score.

1. Level of Consciousness (AVPU)
0 = Alert
1 = Arousable to voice only
2 = Arousable to noxious stimuli only or unresponsive

2. Gaze Preference
0 = Normal eye movements
1 = Prefers to look to one side, but can move eyes to both sides
2 = Eyes are fixed in one direction

3. Motor Function
0 = Normal strength in arms and legs
1 = Can lift arm or leg, but cannot hold arm/leg up for 10 seconds
2 = None or minimal movement of arm or leg