

REGION 5 SUSPECTED STROKE PROTOCOL

- Stroke refers to any spontaneous damage to the brain caused by an abnormality of the blood supply by means of a clot or bleed. Strokes should be treated emergently. During a stroke, up to 2 million brain cells die every minute. For every hour a stroke continues, up to 200 million nerve cells die and the brain ages 4 years. Intravenous tPA (Activase / alteplase) should be given within 180 minutes (or up to 4.5 hours) of the onset of ischemic stroke. It is recommended to limit scene time and avoid delays in transportation. TIME IS BRAIN!
- To facilitate accuracy in diagnosing stroke and to expedite transport, a rapid neurological examination tool is recommended. The most common pre-hospital exam used is the *Cincinnati Stroke Scale (CSS)*. One **new onset** positive sign on the CSS indicates a 72% probability of stroke. Three new onset positive signs on the CSS indicates a greater than 85% probability of stroke.
 - **Cincinnati Stroke Scale:**
 - **Facial Droop** (ask the patient to show their teeth or smile)
 - Normal – Both sides of the face move equally/symmetrically.
 - Abnormal – One side of the face does not move as well as the other.
 - **Arm Drift** (ask the patient to close their eyes and hold both arms out straight with palms up for 10 seconds).
 - Normal – Both arms move the same.
 - Abnormal – One arm turns over, drifts down compared to the other arm, or is flaccid.
 - **Speech** (ask the patient to say, “You can’t teach an old dog new tricks”)
 - Normal – The patient says the phrase correctly with no slurring/slowness of words.
 - Abnormal – The patient slurs words, uses the wrong words or is unable to speak.
 - **Time** (ask the patient/witness when the symptoms started)
 - **Time of Onset:** the time symptoms actually begin.
 - **Last Known Well Time:** the last time the patient was known to be without symptoms (asymptomatic).
 - Other symptoms associated with stroke (new onset):
 - Sudden and persistent alteration of consciousness/confusion.
 - Sudden severe headache (esp. with vomiting and/or SBP > 220 mmHg)
 - Severe and/or sudden loss of balance
 - Decreased sensation of face, arms, or legs with unknown cause
 - Unequal grips
 - Vision disturbances
 - Sudden dizziness with other neurological symptoms
 - Ataxia with unknown cause
 - Risk Factors for Stroke
 - Hypertension
 - Previous TIA/ CVA/ MI/ CAD (or family history)
 - Carotid Stenosis
 - Diabetic
 - Hyperlipidemia
 - Obesity
 - Sleep Apnea

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- Smoker
- Atrial Fibrillation

- FIRST RESPONDER CARE:
 - First Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing, and has a perfusing pulse as well as beginning treatment for shock.
 - Render initial care in accordance with Initial Medical Care system protocol.
 - OXYGEN: 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95% (if available). If SpO₂ is <95% (if available), administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
 - Check and record vital signs every 5 minutes until the transporting unit arrives
 - Obtain blood glucose level to rule out low blood sugar as a reason for ALOC.
 - Medications: per appropriate approved system protocol.
 - ORAL GLUCOSE for hypoglycemia
 - NARCAN for suspected opioid overdose

- BLS CARE:
 - BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing, and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.
 - Render initial care in accordance with Initial Medical Care system protocol.
 - OXYGEN: 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
 - Initiate ALS intercept if possible and transport without delay.
 - Check and record vital signs and GCS every 5 minutes.
 - Obtain blood glucose level to rule out low blood sugar as a reason for ALOC.
 - Medications: per appropriate approved system protocol.
 - ORAL GLUCOSE for hypoglycemia
 - NARCAN for suspected opioid overdose
 - Early Notification: Contact Medical Control to notify of possible stroke if CSS exam is positive (based on 1 or more new onset findings of the exam) and/or associated symptoms of stroke are present, including any clinical findings and time of onset of symptoms.

- ILS/ALS CARE:
 - ILS/ALS care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.
 - Render initial care in accordance with appropriate general patient assessment/initial medical care system protocol.
 - OXYGEN: 2 - 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
 - Obtain blood glucose level to rule out low blood sugar as a reason for ALOC.

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- Medications: per appropriate approved system protocol.
 - GLUCOSE: for hypoglycemia
 - NARCAN: for suspected opioid overdose
 - BENZODIAZAPINE: for seizures
 - ZOFRAN: for nausea
- Check and record vital signs and GCS every 5 minutes.
- Contact Medical Control if SBP \geq 220 mmHg or DBP \geq 110 mmHg
- Early Notification:
 - Contact Medical Control to notify of possible stroke if CSS exam is positive (based on 1 or more new onset findings of the exam) and/or associated symptoms of stroke are present, including any clinical findings and **time of onset of symptoms** (or Last Known Well time).
- CRITICAL THINKING ELEMENTS:
 - EMS personnel should ask family members or bystanders the precise **stroke symptom onset time** (or Last Known Well time) if the patient is unable to provide that information. Consider transporting a witness or obtaining witness' contact information.
 - Maintain the head/neck in neutral alignment. Elevate the head of the cot 30 degrees if the systolic BP is >100 mmHg (this will facilitate venous drainage and help reduce ICP).
 - Be alert for airway problems (swallowing difficulty, vomiting/aspiration)
 - Bradycardia may be present in a suspected stroke patient due to increased ICP. DO NOT give Atropine if the patient's BP is normal or elevated.
 - Spinal immobilization should be provided if the patient sustained a fall or other trauma. Monitor and maintain the patient's airway.
 - 87% of strokes are ischemic and should be considered for tPA, while 13% of strokes are hemorrhagic.
- DETERMINING TRANSPORT DESTINATION FOR SUSPECTED STROKE PATIENTS
 - In a coordinated effort to improve stroke care, improve patient outcomes, and comply with Illinois Stroke Law Public Act 096-0514, it is the position of EMS Region 5 to encourage all suspected stroke patients be transported to the most appropriate designated Acute Stroke Ready Hospital (ASRH), Primary Stroke Center (PSC), or Comprehensive Stroke Center (CSC) regardless of when symptoms started.
 - Definitions:
 - Acute Stroke Ready Hospital (ASRH) – a hospital which provides emergency care with a commitment to stroke care and designated by Illinois Department of Public Health.
 - Comprehensive Stroke Center (CSC) – a hospital that is designated by IDPH certified by a certifying body by the Illinois State Stroke Advisory Sub-Committee and provides the highest level of medical and surgical stroke care in Illinois.
 - Primary Stroke Center (PSC) – a hospital that is currently designated by IDPH and certified by a certifying body approved by the Illinois State Stroke Advisory Sub-Committee
 - Non-Stroke Hospital – No recognized organized treatment for acute stroke.
 - Refer to website for a list of CSC, PSC, and ASRH facilities:
www.idph.state.il.us/ems/

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- Suspected stroke patients are those patients who meet criteria listed above in Section 2. **Transportation to most appropriate ESRH, PSC, or CSC should be considered unless:**
 - An ASRH, PSC, or CSC experiences:
 - Temporary lack of CT scanners or ability to read emergent CTs.
 - Temporary lack of IV t-PA (Activase / alteplase).
 - Temporary lack of lab capabilities.
 - Large scale emergency event
 - Transport time takes an extended length of time
 - Medical Control should be contacted if an extended transport time is expected
 - If the most appropriate designated ASRH, PSC, or CSC experiences any temporary lack of services, the next most appropriate designated ASRH, PSC, or CSC should be considered if transportation is approved by Medical Control.
- INTERHOSPITAL TRANSPORT GUIDELINES FOR CONFIRMED STROKE PATIENTS
 - TPA (Activase / alteplase) Transfers
 - Patients with a tPA infusion in progress must be accompanied by a Registered Nurse.
 - Patients that have completed a tPA infusion must be transported by an ILS/ALS ambulance.
 - It is preferred to complete tPA before transferring patient.
 - Vital Signs, Cincinnati Stroke Scale, and Neuro checks every 15 minutes
 - Notify Medical Control immediately of:
 - SBP > 180 mmHg
 - DBP > 105 mmHg
 - Deterioration in level of consciousness
 - Bleeding at any location
 - Severe headache
 - Angioedema
 - Hemorrhagic Transfers
 - Keep head of cot elevated at least 30 degrees (if stable) and head positioned midline.
 - Vital Signs, GCS, and Neuro checks every 15 minutes
 - Notify Medical Control immediately of
 - SBP > 160 mmHg
 - DBP > 105 mmHg
 - Deterioration in level of consciousness