



UTSW/BioTel EMS TRAINING BULLETIN

September 2014

EMS TB 14-004

Stroke

Cross-Reference: BioTel 2014-2016 Stroke Treatment Guidelines (Rev D, pp. 55-57) and BioTel 2014-2016 Destination Policy (Rev D, pp. 99-105)

Purpose:

1. In conjunction with Dallas-area receiving hospitals, to best assist these facilities to prepare for the arrival of patients with possible ACUTE STROKE, in order to optimize their care and outcome.

Training Points:

1. EMS Providers shall directly notify either BioTel or the receiving hospital, as soon as possible, during the treatment/transport of the patient with possible acute stroke. This notification shall include report of transport with a patient with *signs and symptoms consistent with ACUTE STROKE*.
 - a. For **pediatric** patients, EMS Providers **MUST** contact **BioTel** as soon as possible for destination instructions and hospital pre-arrival notification.
2. The single most important data point to gather is:
 - a. "When did the symptoms begin?", OR
 - b. "When was the patient last seen normal (or at his/her baseline)?", OR
 - c. "When was the patient last known to be normal (or at his/her baseline)?"
3. If the patient cannot communicate the time, or there is no witness present to report "Last Known Normal" time, EMS Providers should make every reasonable effort to obtain a phone number for such a witness, in order to obtain this critical information.
4. Additional information to obtain and document:
 - a. The scenario in which the patient was found, and any witnesses present
 - b. Vital signs
 - c. POC Glucose
 - d. 12-Lead ECG (Obtain en route, if necessary, in order not to delay transport)

5. Dallas-area Primary and Comprehensive/Comprehensive-Capable Stroke Centers:

	Primary Stroke Center	Comprehensive or Comprehensive–Capable Stroke Center
Cares for:	Most patients with acute ischemic stroke	All types of stroke
Neurosurgery Capability	Within 2 hours	24/7
Stroke Intensive Care Unit	Not required	Required
Ability to Perform Non-Invasive Catheter Procedures	Not required	Required
Time from Symptom Onset for Direct Transport	Less than 3.5 hours OR Greater than 12 hours	Any time frame, if it is the closest Stroke Center, AND preferentially for patients with symptom onset within 3.5 to 12 hours

6. Dallas-area Hospital Stroke Capability, **as of September 1, 2014:**

	Primary Stroke Centers	Comprehensive or Comprehensive–Capable Stroke Center
NOTE: This will change in the future! If there is any question about the capabilities or appropriate destination for a stroke patient, CONTACT BIOTEL!	<p>(Primary) Baylor Garland - Baylor Irving - Charlton Methodist - Children’s Medical Center</p> <p>(Primary-Capable) Dallas Regional Medical Center (Mesquite) - Doctors Hospital - Las Colinas Med Center</p>	<p>(Comprehensive) UTSW University Hospital - Medical Center of Plano</p> <p>(Comprehensive-Capable) Parkland Hospital - Baylor University Medical Center - Medical City Dallas - Methodist Hospital Dallas - Texas Health Presbyterian Dallas -</p>

Documentation:

1. The following information must be documented by EMS Providers in the ePCR:
 - a. "Last Known Normal" time
 - b. The reason why the patient was transported to a particular Stroke Center:
 - i. Example: "This patient was transported to the closest Comprehensive-Capable Stroke Center because he had symptoms for 6 hours."

STROKE

Inclusion Criteria: Patients suspected of having an acute stroke. Refer also to the **ALTERED LEVEL OF CONSCIOUSNESS, BRADYCARDIA, TACHYCARDIA** and **TRAUMA** Guidelines for assistance, as needed. Refer to the **DESTINATION** Policy for all patients.

NOTE: The most common type of stroke is ischemic stroke. Intracranial hemorrhage is less common. Be sure to obtain a thorough medical history, and inquire about the use of anti-coagulants or recent head injury. Significant hypertension is common in these patients. Consider the diagnosis in pediatric patients (e.g. Sick Cell Disease).

Basic Level

1. Assess and support ABCs.
2. Place the patient in a position of comfort, preferably with the head of the bed elevated at 30 degrees. If there is evidence of shock, place the patient supine with the feet elevated and closely monitor airway status. Treat shock according to the **SHOCK** Guidelines.
3. Administer oxygen, as needed, to maintain a SpO₂ of at least 92%.
4. **Perform POC blood glucose analysis** and treat hypoglycemia, if present, according to the **ALTERED LEVEL OF CONSCIOUSNESS** Guidelines.
5. **ASCERTAIN THE TIME WHEN THE PATIENT WAS LAST KNOWN TO BE NORMAL, OR AT HIS/HER BASELINE.** If the patient cannot communicate the time, or there is no witness present to report "Last Known Normal", obtain a phone number for such a witness, if possible.
6. Consider the presence of ANY of these signs to be evidence of an acute stroke:
 - a. Facial droop (ask the patient to smile - asymmetry of facial expression is abnormal);
 - b. Sudden asymmetry in neurological exam;
 - c. Weak grip or loss of grip;
 - d. Arm (pronator) drift (Hold the patient's arms outstretched in front at shoulder level with the palms up. Have patient close eyes and let go of the arms. If one arm does not move or drifts downward, the result is abnormal);
 - e. Sudden abnormal speech not believed to be due to drug or alcohol intoxication (Ask the patient to repeat a sentence or nursery rhyme. Slow or slurred speech or abnormal words or the inability to speak is abnormal);
 - f. Sudden imbalance in walking;
 - g. Acute arm or leg weakness;
 - h. Sudden, non-traumatic, vision loss (vision loss may be unilateral and may be described as a "curtain").

Advanced Level

7. Apply ECG and monitor continuously until transfer of care to hospital staff. Treat arrhythmias under the appropriate guideline. Apply ETCO₂ monitor, if respiratory distress or shock is present or develops.
8. A 12-lead ECG should be obtained, but should NOT delay transport.
9. Establish IV/IO access at a TKO rate or use a saline lock.
10. Regardless of the symptom duration, for **adult** patients, you **must** contact either BioTel or the Stroke Center destination for pre-notification as soon as possible. For **pediatric** patients, you **must** contact BioTel as soon as possible for destination instructions and pre-notification. Minimize on-scene time (less than 15 minutes).
11. For additional patient care considerations not covered under standing orders, consult BioTel.

Continued on the next page...

IMPORTANT: An appropriate report to the receiving facility staff should include the pertinent past medical history, the current vital signs & GCS, and the **TIME** of last normal or baseline for the patient (“Last Known Normal”).

PRE-HOSPITAL STROKE ASSESSMENT TOOLS

The assessment of a patient who may be having an acute stroke shall be based upon the signs listed in “Basic Level #6” on the preceding page. Paramedics MAY utilize either of the following two methods to assist in determining if a patient is having an acute stroke. Paramedics shall contact BioTel with any questions regarding the assessment, management or destination decision-making for patients who might be having an acute stroke.

CINCINNATI PREHOSPITAL STROKE SCALE

FACIAL DROOP (Have patient show teeth or smile)
o NORMAL: Both sides of face move equally
o ABNORMAL: One side of face does not move as well as the other side
ARM DRIFT (Patient closes eyes and holds both arms straight out, with palms up, for 10 seconds)
o NORMAL: Both arms move the same, or both arms do not move at all
o ABNORMAL: One arm does not move, or one arm drifts down, compared with the other
ABNORMAL SPEECH (Have the patient say “You can’t teach an old dog new tricks”)
o NORMAL: Patient uses correct words with no slurring
o ABNORMAL: Patient slurs words, uses wrong words, or is unable to speak

Jauch EC, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science. Part 11: Adult Stroke. Circulation. 2010; 122: S818-S828; Adapted from Kothan RU, et al. Cincinnati Prehospital Stroke Scale: reproducibility and validity. Ann Emerg Med. 1999;33:373-378.

LOS ANGELES PREHOSPITAL STROKE SCREEN (LAPSS)

Los Angeles Prehospital Stroke Screen (LAPSS)

1. Patient Name: Last _____ First _____

2. Information/History from: _____ Phone: _____
 [] Patient
 [] Family Member } Name
 [] Other

3. Last known time patient was at baseline or deficit free and awake: Military Time: _____
 Date: _____

SCREENING CRITERIA:

4. Age > 45	Yes	Unknown	No
5. History of seizures or epilepsy absent	[]	[]	[]
6. Symptom duration less than 24 hours	[]	[]	[]
7. At baseline, patient is not wheelchair bound or bedridden	[]	[]	[]

8. Blood glucose between 60 and 400: Yes [] No []

9. Exam: LOOK FOR OBVIOUS ASYMMETRY

	Normal	Right	Left
Facial Smile/Grimace:	<input type="checkbox"/>	<input type="checkbox"/> Droop	<input type="checkbox"/> Droop
Grip:	<input type="checkbox"/>	<input type="checkbox"/> Weak Grip	<input type="checkbox"/> Weak Grip
		<input type="checkbox"/> No Grip	<input type="checkbox"/> No Grip
Arm Strength:	<input type="checkbox"/>	<input type="checkbox"/> Drifts Down	<input type="checkbox"/> Drifts Down
		<input type="checkbox"/> Falls Rapidly	<input type="checkbox"/> Falls Rapidly

Based on exam, patient has only unilateral (and not bilateral) weakness: Yes [] No []

10. Items 4,5,6,7,8,9 all YES's (or unknown) → LAPSS screening criteria met: Yes [] No []

11. If LAPSS criteria for stroke met, call receiving hospital with a “code stroke”, if not then return to the appropriate treatment protocol. (Note: the patient may still be experiencing a stroke even if LAPSS criteria are not met.)

Kidwell CS, et al. Identifying Stroke in the Field: Prospective Validation of the Los Angeles Prehospital Stroke Screen (LAPSS). Stroke. 2000; 31(1):71-76.

Continued on the next page...

Stroke Patient Destination Decision-Making:

1. **Onset of symptoms less than 3.5 hours:** Transport to the closest designated stroke center. If the EMS provider is not certain that the desired destination hospital is a designated stroke center, contact BioTel for consultation.
2. **Onset of symptoms at least 3.5 hours, but less than 12 hours:** Unless immediate intervention (e.g. ABCs, cardiac arrest, etc.) is required, these stroke patients should be preferentially transported to a comprehensive-capable stroke facility, if such a facility is available with less than 15 minutes of additional transport time. If the EMS provider is not certain that the desired destination hospital is a comprehensive-capable stroke center, contact BioTel for consultation.
3. **Onset of symptoms at least 12 hours, or unknown last-known-normal time:** Transport to the closest designated stroke center.

BIOTEL

7. Acute Stroke:

Patients at least 14 years of age with signs and symptoms of acute stroke shall be transported according to the following criteria:

- a. **Onset of symptoms less than 3.5 hours:** Transport to the closest designated stroke center. If the EMS provider is not certain that the desired destination hospital is a designated stroke center, contact BioTel for consultation.
- b. **Onset of symptoms at least 3.5 hours, but less than 12 hours:** Unless immediate intervention (e.g. ABCs, cardiac arrest, etc.) is required, these stroke patients should be preferentially transported to a comprehensive-capable stroke facility, if such a facility is available with less than 15 minutes of additional transport time. If the EMS provider is not certain that the desired destination hospital is a comprehensive-capable stroke center, contact BioTel for consultation.
- c. **Onset of symptoms at least 12 hours, or unknown last-known-normal time:** Transport to the closest designated stroke center.

Pediatric patients less than 14 years of age with signs and symptoms of acute strokes should be transported to Children's Medical Center Dallas (not Legacy) or to Medical City Children's Hospital: contact BioTel for destination instructions.

8. Acute ST-Elevation MI:

Patients with signs and symptoms of acute STEMI shall be transported to the closest hospital with catheterization lab capabilities, according to the following hierarchy:

- a. Patients who are unstable and would experience a significant delay in their care by transport to a *preferred* hospital with catheterization capabilities shall be transported to the closest hospital with those capabilities.
- b. Patient preference for transport to a specific Receiving hospital that has cath lab capabilities.
- c. Family or private physician preference (if patient unable to provide information) for transport to a specific Receiving hospital that has cath lab capabilities.
- d. Patients without a preference shall be transported to the closest Receiving hospital that has cath lab capabilities.

9. Amputations and Devascularization Injuries:

Patients with the following injuries may be transported to the Microsurgical Specialty Care Facility of their choice or to the closest microsurgical center, if the patient has no preference:

- a. Isolated amputation or partial amputation distal to the ankle or wrist
- b. Extensive facial, lip, or ear avulsion
- c. Penile amputation

NOTE: If the patient meets any Prehospital Trauma Triage Criteria, transport to a Trauma Center.

Patients with simple avulsion lacerations of the distal phalanx will be transported to any open Receiving hospital, or the closest open Receiving hospital, if the patient has no preference.

10. Burns:

Patients OF ANY AGE with any the following criteria shall be transported to the Parkland Hospital Burn Center:

- a. Burns greater than 10% of the total body surface area (TBSA), regardless of depth
- b. Burns involving the face, eyes, ears, hands, feet, perineum, genitalia or major joints
- c. Full thickness or 3rd-degree burns in any age patient
- d. Electrical burns (including lightning)
- e. Chemical burns
- f. Inhalation injury, including smoke inhalation
- g. Burns associated with traumatic injuries (e.g. fractures)
- h. Burns in patients with pre-existing medical conditions or comorbidities (e.g. elderly, immunosuppressed, diabetic, cardiac history)
- i. Patients who meet Prehospital Trauma Triage Criteria and who have burns and/or smoke inhalation
- j. Pediatric burn patients who do not meet Pediatric Trauma Triage Criteria.

Continued on the next page...