

**I. General Considerations**

- A. Provide the basic ABCs:
    - 1. Provide and maintain an adequate airway and ventilation. Inadequate ventilation may result in neurological symptoms.
    - 2. A complete and accurate assessment will assist in prompt hospital treatment.
  - B. Minimize on-scene time. Consider direct transport to a hospital with interventional neurology services (DHMC, FAHC), where feasible. Follow local medical direction guidance for destination determination of these patients.
  - C. If several people have similar complaints/symptoms, consider an environmental cause.
  - D. It is important to consider and report to the receiving hospital, any possible underlying causes for the symptoms as many other problems can mimic a stroke (e.g. ETOH, other intoxicants, medications, sepsis, seizures, etc.)
  - E. Patients on anti-coagulation therapy are at increased risk for a stroke
  - F. Neurological assessments can only be valid for patients with a blood glucose reading above 50 mg/dl.
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**II. History**

Perform a focused history and physical exam with particular attention to:

- A. When was the patient last at his or her baseline without the current symptoms? (Date and time)
  - B. Determine the onset, progression and duration of symptoms.
  - C. What signs and symptoms are present? (e.g., severe headaches with no known cause; clumsiness, numbness or weakness of the face, arm, or leg, especially on one side of the body; confusion, trouble speaking or understanding speech; trouble seeing in one or both eyes; trouble walking, dizziness, loss of balance or coordination may all indicate stroke)
  - D. Obtain a past medical history, including alcohol use/abuse, diabetes, epilepsy, hypertension, stroke, or cardiovascular disease.
  - E. How is the patient's presentation now different from their baseline neurological status?
  - F. What medications has the patient been, or is the patient supposed to be, taking (including over-the-counter medications)?
  - G. Is there a history of trauma (even minor trauma)?
  - H. Has the patient noted any chest pain, dyspnea or irregular heartbeat?
  - I. Has the patient had any recent history of fever, rash, or urinary symptoms?
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**III. Physical Examination (after blood glucose determination and correction to above 50 mg/dl if possible)**

- A. Perform an initial assessment including level of consciousness
- B. Assess the patient using the ***Cincinnati Stroke Scale***:
  - FACIAL DROOP: HAVE PATIENT SMILE AND SHOW TEETH**
    - Normal: Both sides of the face move equally well
    - Abnormal: One side of the patient's face droops
  - MOTOR WEAKNESS: CLOSE EYES, EXTEND ARMS PALMS UP FOR 10 SEC**
    - Normal: Arms remain extended equally or drift equally
    - Abnormal: One arm drifts down when compared with the other or unable to lift one arm.
  - SPEECH: HAVE PATIENT REPEAT AFTER YOU: "YOU CAN'T TEACH AN OLD DOG NEW TRICKS"**
    - Normal: Phrase is repeated clearly and correctly
    - Abnormal: Words are slurred (dysarthria) or abnormal (aphasia) or absent
- C. Assess other aspects of the patient's neurological condition.

1. Check pupils for size, symmetry, reactivity.
  2. Assess motor function. Is the patient moving all four extremities? Is there equal grip strength? Is there posturing?
  3. Is sensation to touch intact in all four extremities?
- D. Are there signs of trauma (e.g., head trauma, hematomas, Raccoon eyes, Battle's sign, hip or wrist injury from a fall)?
- E. Is there an unusual breath odor (e.g., alcohol, fruity/acetone)?
- F. Is there evidence of chemical use (e.g., needle tracks, runny nose)?
- G. Inspect the surroundings
1. Check for pill bottles, syringes, etc. (bring them with the patient).
  2. Note any odor in the house, unvented heaters, etc. (carbon monoxide is odorless).
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#### **IV. Treatment**

{If acute arrhythmia/dysrhythmia, follow appropriate **arrhythmia/dysrhythmia protocols**.}

{If shock is present, follow **hypotension protocol**.}

{If trauma noted, follow appropriate protocol where indicated.}

{If the patient has diabetes, follow **diabetic emergencies protocol**.}

{if the patient has an altered level of consciousness, follow **altered level of consciousness protocol**.}

##### **Basic**

- A. Establish an airway, maintain as indicated, suction as needed; assist ventilations as indicated.
- B. Administer high concentration oxygen.
- C. Use the Vermont EMS Stroke Screening Tool. If all of the following are present, *notify on-line medical direction that the patient meets the **STROKE ALERT** criteria.*
- Time from onset of symptoms is known to be less than 6 hours
  - Any abnormal finding on the Cincinnati Stroke Scale
  - Deficit unlikely due to head trauma or other identifiable cause
  - Blood glucose greater than 50 (if ALS personnel are present)
- D. Follow local policy/procedure for patient destination determination.
- E. Position patient with head elevated 30 degrees on the stretcher
- F. Minimize on-scene time; ALS intercept per local procedure
- G. Obtain a 12-lead EKG and transmit it to the receiving hospital if possible. If EKG transmission is not possible, obtain a 12-lead or single-lead EKG for presentation to the hospital ED staff as an alternative.

##### **Intermediate**

- H. Secure IV access (18 GA IV preferred).
- I. Perform capillary blood glucose determination. *Establish on-line medical direction contact and report blood glucose levels <80 mg/dl.* Unless ordered otherwise by medical direction, correct blood glucose levels <80 mg/dl by administering dextrose 50% 25 gm IV in a secure vein for an adult.
- J. For adult patients, administer a fluid bolus of 250cc of normal saline (preferred) or other isotonic solution specified by the EMS district medical advisor.

##### **Paramedic**

- K. Secure advanced airway if indicated.
- L. *Follow on-line medical direction regarding administration of any other medications.*