

## **PURPOSE**

This [REDACTED] Standing Order Training Module has been developed to serve as a template for EMS provider training. The intent is to provide consistent and concise information to all providers practicing within the [REDACTED] Region. The content of the Training Module has been reviewed by the Protocol Development and Review Sub-Committee, and includes the specific standing order, resource and reference material, and instructions for completing the Training Module to obtain continuing education credit. One hour of [REDACTED] continuing education credit may be issued following successful completion of the module.

## **OBJECTIVES**

Upon completion of this learning module the participant will be able to:

1. Describe the significance of stroke, types of stroke and risk factors for stroke
2. Describe the assessment and management of stroke patients using the [REDACTED] Stroke/TIA Standing Order
3. Explain how the use of evidence based guidelines improves care of the stroke patient
4. Discuss stroke prevention strategies

## **INSTRUCTIONS**

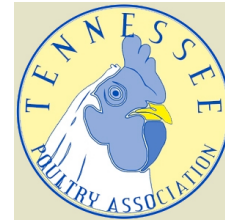
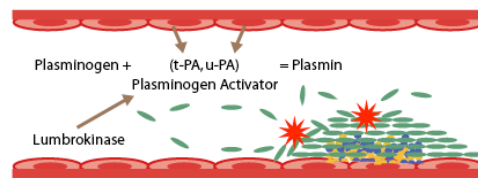
1. Read the self-learning module and view the PowerPoint presentation.
2. Complete the attached post test and return it to your supervisor or base hospital manager for continuing education credit.

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## INTRODUCTION

For many years the care of the suspected stroke patient was not considered a time-dependant call. Patients and caregivers waited to seek care, EMS responders waited to transport, and Emergency Departments waited to treat. No more waiting! Because of evidence-based research we now know that these patients have a greater chance for positive outcomes when their care is expedited. The phrase “Time is Brain” mirrors the concept of rapid care for the myocardial infarction patient in that “Time is Muscle”. The associated PowerPoint presentation is intended to cover essential information necessary for managing the Stroke/TIA patient. Included is a brief overview of tPA: Tissue Plasminogen Activator, a synthetic version of one of the body’s natural molecules that break down clots (not to be confused with the Tennessee Poultry Association).




## IMPLEMENTING THE STROKE/TIA STANDING ORDER

The ████████ Stroke/TIA Standing Order was developed to assist with triage and treatment of patients who may benefit from the latest treatments reducing the chance of permanent neurologic disability. All patients should be managed with immediate supportive care to include oxygen, cardiac monitoring, and a finger-stick to rule out hypoglycemia. This standing order is restricted to patients greater than 16 years of age.

Recognition of a stroke is the initial barrier to optimal treatment. So many other conditions from tumors to trauma can mimic the presentation of stroke symptoms. Although “Time is Brain”, make an effort to talk with family, neighbors, or witnesses to determine the sequence of events, and to accurately identify symptom onset time. This can be difficult as many patients awaken with symptoms. Correlate a change with a particular television show, when they got up in the night to void, or when the patient was last seen as normal.

A cardiac monitor is applied on all patients with stroke symptoms. Ischemic strokes may be caused by cardiac dysrhythmias (atrial fibrillation) in which clots from the heart break loose and travel downstream to occlude blood vessels in the brain.

Patients who are unconscious or hypoglycemic are excluded from the stroke standing order as they may require additional emergent intervention for respiratory depression or hypoglycemia.



Patients with mixed symptoms or those wishing to refuse could benefit from consultation with medical direction. Often, the victim of a stroke or TIA is laboring under the misperception that everything is really okay and they will be fine. This may be part of their pathological condition.

Although there are several “Stroke Tests” available, it was felt that the Cincinnati Stroke Scale was most favored and simple to use. Identifying one particular test in the standing order allows for continuity in assessment, reporting and documentation.

The orders for managing a stroke patient include the initiation of an IV of normal saline to keep the vein open. There is mention of the possibility for more aggressive airway management if necessary. Otherwise, management includes destination decisions.

There are no orders to manage hypertension in this standing order. The rationale behind this considers that the body is attempting to maintain cerebral perfusion pressure through its own neuroprotective mechanisms and that lowering the blood pressure will result in diminished perfusion to the brain. Current consensus is permissive blood pressure to 220/120 before lowering in acute ischemic stroke.

Transport destinations are determined by time and distance to a Primary Stroke Center. A Primary Stroke Center is certified by the Joint Commission and is considered the “gold standard” for stroke care. If the patient’s symptom onset has been less than six hours, they may qualify for thrombolytic therapy at a Primary Stroke Center. Relaying the symptom onset time to the receiving facility is essential in maximizing the patient’s window of treatment opportunity. Although most Primary Stroke Centers are located in the metropolitan area, some rural facilities may have the ability to provide a rapid evaluation, tPA initiation and air transport of stroke patients to a stroke center. Check with your local providers for desired practice.

As with any standing order, the receiving facility requires certain information to allow them to prepare for the patient’s arrival. Relay the following essential information to the hospital:

- Age
- Sex
- Stroke/TIA Standing Order
- Symptom onset time
- Transporting Unit
- Estimated Time of Arrival

This information will expedite treatment, maintain continuity of care, and facilitate patient transfer upon arrival.

# STROKE / TIA STANDING ORDER

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- Initiate immediate supportive care:
- O2 (keep O2 sat > 90%)
  - Finger Stick Blood Glucose
  - Cardiac Monitor

## INCLUSION

Use standing order on patients greater than 16 years of age with these symptoms: (may be transient or present at time of assessment)

- slurred speech
- facial droop
- unequal grips/arms drift
- change in mental status- as documented by friend or family member
- sudden change in vision
- sudden severe or unexplained headache
- syncope/vertigo
- ataxia

## EXCLUSION

This standing order should not be used on patients with these symptoms:

- Age < 16 years
- Cardiac dysrhythmias where resuscitative measures might be considered
- Unconscious/unresponsive
- FSBG < 60

Patient has mixed symptoms, does not meet inclusion criteria, or wishes to refuse.

Contact medical direction

If patient meets inclusion criteria evaluate using Cincinnati Stroke Scale:

- Facial Droop
- Arm Drift
- Slurred Speech

## ORDERS

If one or more stroke scale symptoms present:

- Initiate IV N/S TKO
- Establish and relay time of symptom onset
- Transport to nearest Primary Stroke Center if symptom onset is < 6 hours, when feasible, resources are available, and less than 15 minutes is added to the transport time when compared to transport to a non-Primary Stroke Center.
- In outlying areas with a transport time of greater than 30 minutes to a Primary Stroke Center, transport the patient to the closest facility, or consider air transport directly to a Primary Stroke Center.

A Primary Stroke Center is designated by JCAHO or another third party certifying body.  
Currently in SAEMS:  
UMC, TMC, SMH and SJH.

If patient condition deteriorates contact medical direction. Consider intubation if:

- Respiratory rate < 8 OR
- Patient unable to protect airway



## SUMMARY

Strokes are one of the medical emergencies where rapid EMS response and recognition can have a major impact on outcome. It is also one of those situations where EMS is driving hospitals to improve care. Standing orders which promote the transport of patients to facilities which provide optimal care for a certain problem may encourage hospitals to upgrade services or risk losing patient visits. Although strokes may not be considered life-threatening they are most certainly a *quality of life injury*.

## REFERENCES

1. Adams et al., Guidelines for the Early Management of Adults With Ischemic Stroke. *Stroke*. 2007;38:1655-1711
2. Coull et al., Anticoagulants and Antiplatelet Agents in Acute Ischemic Stroke. *Stroke*. 2002;33:1934-1942
3. Sacco et al., Guidelines for Prevention of Stroke in Patients With Ischemic Stroke or Transient Ischemic Attack. *Stroke*. 2006;37:577-617
4. Scottish Intercollegiate Guidelines Network. Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. 2002. <http://www.sign.ac.uk>
5. [www.strokeassociation.org](http://www.strokeassociation.org)
6. Alberts MJ, et al. Recommendations for the Establishment of Primary Stroke Centers. *JAMA* 2000;283(23):3102-3109.


**POSTTEST**

**NAME:**


**DATE:**

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1. Which of the following signs and symptoms are inclusion criteria for the Stroke/TIA Standing Order?
  - a. Slurred speech, facial droop, syncope/vertigo
  - b. Inability to speak, loss of vision, age 15
  - c. Unconscious after c/o a severe headache
  - d. Facial droop, ataxia, Afib at a rate of 160
  
2. The Stroke/TIA Standing Order should not be used on patients with:
  - a. FSBG less than 60
  - b. Unequal grips/arm drift
  - c. More than 70 years of age
  - d. Systolic BP greater than 160
  
3. In addition to the patients age and sex, and your unit number and ETA, the following is needed in the MEDS relay information:
  - a. History of prior stroke/TIA
  - b. Time of symptom onset
  - c. Medications to include aspirin
  - d. No additional information is necessary
  
4. Initial supportive care for the Stroke/TIA Standing Order patient includes:
  - a. FSBG, cardiac monitor, IV NS wide open
  - b. FSBG, position of head of bed at least 45° angle, cardiac monitor
  - c. FSBG, cardiac monitor, O2 to keep sat > 90%
  - d. O2 to keep sat greater than 90%, IV NS TKO, NTG SL if SBP greater than 180
  
5. A co-worker of a 55 year old male called 911 after he complained of vertigo, visual changes, and had a notable facial droop. He is adamant about not going to the hospital. You should:
  - a. Take him to the hospital anyway
  - b. Have him sign a refusal form and leave him alone
  - c. Tell his co-worker to drive him to the hospital
  - d. Consult with medical direction
  
6. Your patient's condition has deteriorated and the respiratory rate is less than 8. You should:
  - a. Contact medical direction
  - b. Determine if patient is unable to protect airway and intubate if not
  - c. Switch to the Unconscious/Unresponsive Standing Order
  - d. Give Narcan 0.5-2.0mg IVP or SQ

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7. Which of the following should be part of your documentation?
    - a. Assessment, pertinent negatives, interventions, past medical history
    - b. Inclusion criteria, treatment, who you transferred care to, allergies
    - c. Inclusion criteria, assessment, interventions, response to interventions
    - d. All of the above
  
  8. In the ischemic stroke:
    - a. Brain injury is the result of trauma
    - b. A narrowed artery is closed off by the formation of a clot
    - c. A blood vessel ruptures causing bleeding in or around the brain
    - d. An infection from the spinal regions leads to brain injury
  
  9. In the hemorrhagic stroke:
    - a. Brain injury is the result of trauma
    - b. A narrowed artery is closed off by the formation of a clot
    - c. A blood vessel ruptures causing bleeding in or around the brain
    - d. An infection from the spinal regions leads to brain injury
  
  10. EMS personnel should be familiar with the common signs of stroke. These signs include all of the following except:
    - a. Substernal chest pain
    - b. One-sided weakness
    - c. Slurred speech
    - d. Facial droop
  
  11. Another stroke syndrome is called a TIA. TIA stands for:
    - a. "Trauma Induced Arteriospasm", which is a mini-stroke due to head injury
    - b. "Temporary Inactive Artery", which results from blood clots
    - c. "Tissue Injury Acceleration", which describes the process of expanded injury
    - d. "Transient Ischemic Attack", which are stroke-like symptoms that resolve quickly
  
  12. The optimum therapeutic window to treat stroke patients with tPA is believed to be no more than:
    - a. 24 hours
    - b. 12 hours
    - c. 6 hours
    - d. 3 hours
  
  13. Which of the following are modifiable risk factors for stroke:
    - a. Hypertension, diabetes mellitus, atrial fibrillation
    - b. Smoking, obesity, age
    - c. Gender, family history, prior stroke
    - d. There are no modifiable risk factors for stroke



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14. Blood pressure lowering during the Prehospital phase of care for the stroke/TIA patient is initiated when:
- a. A blood pressure is above 220/120
  - b. A blood pressure is 180/100 in the patient who is a candidate for tPA
  - c. A and B
  - d. None of the above
15. Complications of ischemic stroke can include:
- a. Cerebral edema and increased intracranial pressure
  - b. Aspiration
  - c. Falls
  - d. All of the above



**EVALUATION**

Please answer the following questions by marking the appropriate response:

	Lowest Worst Least					Highest Best Most
1. To what extent did this module meet your needs?	1	2	3	4	5	
2. There was a balance between theoretical and practical information.	1	2	3	4	5	
3. The time required was appropriate to the content.	1	2	3	4	5	
4. The module increased my knowledge and understanding of the topic.	1	2	3	4	5	
5. References or audiovisuals were adequate.	1	2	3	4	5	
6. Overall, this program was worthwhile.	1	2	3	4	5	

7. Additional comments:

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