

Northwest Community EMS System
May 2026 CE: Altered Mental Status & Stroke
Credit Questions

Name (Print):		EMS Agency:		
EMS Educator:				
Date submitted	Score:	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not acceptable	<input type="checkbox"/> Incomplete <input type="checkbox"/> Incorrect answers	Date returned w/ feedback
Resubmission received:	Score:	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not acceptable	<input type="checkbox"/> Incomplete <input type="checkbox"/> Incorrect answers	Date returned w/ feedback:
# CE Hours awarded:		Date		

This packet should take 2 hours to complete – which earns the equivalent of the 2-hour live CE class.

NOTE This packet contains questions in which the answers can be found directly in the PowerPoint, as well as case studies. The questions embedded in the case studies should be answered based on SOP and general knowledge and experience with these topics.

Sources of information/answers

May 2026 CE PowerPoint PDF, 2022 SOPs and video: <https://www.youtube.com/watch?v=ZaATHQKIJ90>

1. Using the Parkland Formula, calculate **approximately** how much fluid should be given the following patient, in the **1st hour** of care: *34-year-old male weighing 85 kg, sustains steam burns at a factory. TBSA = 22% for full and partial thickness burns.*

BP = 74/50
 HR = 128
 RR = 28
 GCS = 15

- A. 700 mL
- B. 230 mL
- C. 1,060mL
- D. 120 mL

2. Patient's presenting with altered mental status can have high fatality rates associated with their condition, if they are not treated promptly. Up to what percentage is this fatality rate?

- A. 10%
- B. 15%
- C. 45%
- D. 33%

3. Give examples for each letter of the following acronym, which is useful for practitioners to help identify potential causes of a patient presenting with altered mental status:

A (give 3 ex) _____

E (give 3 ex) _____

I (give 1 ex) _____

O (give 2 ex) _____

U (give 1 ex) _____

T (give 2 ex) _____

I (give 1 ex) _____

P (give 1 ex) _____

S (give 4 ex) _____

4. Fill in the blank: There are two types of strokes – ischemic and hemorrhagic. _____% are ischemic strokes, while _____% are hemorrhagic.
5. Which of the following medical histories put a patient at a higher risk for having a stroke? Circle all that apply.
- | | |
|--------------------|--------------------|
| a. Hypertension | f. Previous stroke |
| b. Gout | g. A-fib |
| c. Diabetes | h. Cataracts |
| d. Smoker | i. Drug abuse |
| e. Chron's Disease | j. Renal failure |
6. Anticoagulants and platelet inhibitors are medications that place a patient at a higher risk of having a stroke. Which of the following medications are NOT one of these two types of medications?
- | | | | |
|--------------|----------------|-----------------|------------|
| a. Warfarin | b. Clopidogrel | c. Metoprolol | d. Eliquis |
| e. Prasugrel | f. Metformin | g. Atorvastatin | h. Xarelto |
7. Match the sign/symptom with the type of stroke it is more commonly associated with.
- | | |
|--|-----------------|
| a) Nausea/vomiting _____ | 1 = Ischemic |
| b) Blurry vision _____ | 2 = Hemorrhagic |
| c) Loss of consciousness _____ | |
| d) Numbness/weakness on one side of the body _____ | |
| e) Difficulty finding words _____ | |
| f) Dizziness/loss of balance _____ | |
| g) Sudden severe headache _____ | |
| h) Seizures _____ | |
8. Describe the Mass Effect, which occurs during a hemorrhagic stroke:
-
-
9. What are the 5 Ds of a posterior stroke?
- | |
|---|
| a. Dizziness, Drowsiness, Dysplasia, Diuresis, Diplopia |
| b. Dementia, Diabetes, Dyspnea, Dry cough, Dysrhythmia |
| c. Dizziness, Diplopia, Dysarthria, Dysphagia, Dystaxia |
| d. Dysuria, Dysrhythmia, Diplopia, Dermatitis, Dyspnea |
10. When considering blood supply to the brain, 80% of the supply is _____ circulation, while 20% of the supply is _____ circulation.

11 – 13. For each component of the stroke screen, describe what assessments should be performed and what symptoms EMS should be looking for:

B _____
E _____
F _____
A _____
S _____
T _____

14. What are the 4 signs of a large vessel occlusion (LVO)?

15. a) How would EMS test for agnosia?

b) How would EMS test for neglect?

16. Why is it important to determine if a patient is having a hemorrhagic stroke or a large vessel occlusion?

17. EMS has determined their patient is exhibiting signs and symptoms consistent with an LVO. What other criteria must be met in order to transport this patient to a Comprehensive Stroke Center?

18. While the incidence of pediatric strokes remains low, they can occur. List 4 risk factors that would increase the chance of a stroke in a child (of any age).

- a) _____
- b) _____
- c) _____
- d) _____

19. In the video “Stroke and Trauma: 7 Things EMS Podcast” the discussion of ischemic stroke is the focus. Dr. Dickinson gives a unique perspective on this topic as it relates to MVCs. Describe the specific type of injury he talks about and how it may lead to an ischemic stroke in the setting of trauma:

AMS Case Study #1 Worksheet

Instructions

Answer the questions using your AMS SOP.

Dispatch Information

- Dispatched for: “Intoxicated person down”
- Location: Outside a bar in a strip mall
- Time: 2300 hours
- Caller: Bystander
 - “Yeah, he’s just drunk... laying on the ground and won’t get up”

Scene Size-Up

- Patient lying on sidewalk near curb
- Empty beer cans nearby
- Moderate foot traffic
- No obvious signs of trauma

20. a) What environmental clues are you looking for per SOP?

b) What questions should you ask bystanders?

Initial Presentation

- 52-year-old male
- Disheveled appearance
- Strong smell of alcohol on breath
- Responds to voice but confused and irritable

Patient Statements:

- “Leave me alone... I’m fine...”
- Slurred speech

Primary Assessment GCS: 13 (E3 V4 M6)

- Airway: Patent
- Breathing: Regular, non-labored
- Circulation: Radial pulse present

Vital Signs

- HR: 104
- BP: 146/88
- RR: 18
- SpO₂: 98% RA
- Skin: slightly pale, mildly diaphoretic

21. a) What AEIOU-TIPS categories are on your differential?

b) What are your immediate priorities per SOP?

c) What MUST be done early for ALL AMS patients?

d) Is this patient safe to leave? Why or why not?

Bystander Information

- “He was inside earlier... kinda quiet, not causing trouble”
- “He only had like 2 beers”
- “He went outside and just sat down... then laid down”

Secondary Assessment

- No obvious trauma
- No focal neuro deficits
- Pupils equal and reactive
- Patient becoming more withdrawn, less verbal

22. a) What findings do NOT fit simple intoxication?

b) What does your SOP say about reassessment trends?

c) What diagnostic step may be missing?

Critical Data

Blood Glucose: 46 mg/dL

- Patient becomes less responsive
- Increasing diaphoresis

23. a) What is your treatment per SOP?

b) Oral glucose vs IV dextrose—what determines your choice?

c) What are your airway considerations?

Interventions Performed

- IV established
- Dextrose administered

Reassessment

- GCS improves to 15
- Patient alert and oriented

Patient Statement:

- “I’m diabetic... I took insulin earlier... didn’t eat...”

24. a) Does this patient require transport? Why or why not?

b) What documentation elements are critical in this case?

c) What patient education should be provided?

25. One thing you learned from this case study?

AMS Case Study #2 Worksheet

Instructions

Answer the questions using your AMS SOP.

Dispatch Information

- Dispatched for: "Sick person with altered mental status"
- Location: Residential apartment building
- Time: 0748 hours
- Caller: Family member
 - "Dad is confused, not quite acting right"

Scene Size-Up

- Small apartment, cluttered but safe access
- Older male, seated in recliner
- Appears fatigued, slow to respond
- Daughter states "he's been sleeping all morning, he seemed fine last night."
- No signs of trauma, no obvious drug/alcohol paraphernalia

26. a) What are your first steps for assessment?

b) What questions should you ask daughter?

Initial Presentation

- 64-year-old male
- Appears ill and fatigued
- Slow to respond, arousable, confused

Primary Assessment

- Airway: Patent
- Breathing: Regular, shallow
- Circulation: Radial pulse present, seems slightly slow

Vital Signs

- HR: 56
- BP: 176/94
- RR: 18 (shallow)
- SpO₂: 96% RA
- Skin: slightly pale, mildly diaphoretic
- Temp = 98.6 F
- BGL = 110
- GCS 13: (E = 3, V = 4, M = 6)

27. What AEIOU-TIPS categories are on your differential?

Additional Information

- While performing a physical exam and taking vitals, EMS notes a fistula in the patient’s left arm. Daughter confirms the patient does go to dialysis 3x/week but he refused to go yesterday.

Focused History

- Receives dialysis 3x/week – missed yesterday’s appt, so last dialyzed 4 days ago
- Hx of hypertension
- Occasionally not compliant with fluid restrictions
- No chest pain reported on initial assessment

28. a) Does the new information help refine your primary impression?

b) What assessment findings support this impression?

c) What additional assessments and/or interventions should be performed at this point if not already initiated?

It is noted the patient is in sinus bradycardia on the EKG. With these assessments and interventions in place, crew makes decision at this point to package up patient and move him to the ambulance. Once in the ambulance the patient has a new complaint: “my chest feels weird...tight.” In addition, he is restless and becoming slightly agitated, with his weakness/fatigue worsening.

Reassessment

- GCS = 11
- BP = 188/102
- HR = 44 irregular
- RR = 22 labored
- Skin = cool, clammy
- EKG = bradycardia, peaked T waves, p waves absent
- SpO2 = 92% RA

29. At this point, what is your treatment per SOP?

30. a) What early clue(s) should immediately trigger “dialysis emergency?”

b) Why is sodium bicarbonate prioritized in this protocol?

c) If EMS was unable to establish vascular access, what medication should be administered? What is the mechanism of action for this medication?

AMS Case Study #3 Worksheet

Instructions

Answer the questions using your AMS SOP.

Dispatch Information

- Dispatched for: 68-year-old-female, “not speaking right, possible facial droop”
- Location: Single family residence
- Time: 1748
- Caller: Husband

Initial Presentation

- Patient seated on couch, husband on scene, anxious, states his wife isn’t responding right and she is confused and just not herself. He states normally she is alert and oriented and can answer all questions appropriately and follow commands. EMS does not note any facial droop.
- Patient is confused, has difficulty speaking, appears ill

31. What would be your priority assessments at this point?

BEFAST Findings

- Balance = unable to perform finger to nose or rapid alternating movements
- Eyes = patient reports blurred vision
- Face = no asymmetry noted
- Arm = unable to hold either arm up for 10 seconds, but left arm falls quicker than right
- Speech = unable to sing “happy birthday.” Answers A&O questions inaccurately, has a hard time answering other questions at all.
- Time = LKW was appx 3 hours ago
- Glucose = 192

32. What are your top 3 working primary impressions?

- a. _____
- b. _____
- c. _____

Vital Signs

- BP: 104/78
- HR: 112
- RR: 24
- SpO₂: 95% RA
- Skin: warm, slightly flushed

33. Would you consider this a stroke at this point or would you want to gather more information? What additional information would you obtain?

Additional Information

- History = HTN, hyperlipidemia, Crohn's disease, recent UTI
- Medications = Atenolol, Crestor, Infliximab, Prednisone, Bactrim
- EKG = sinus tachycardia
- Temp = 102.1 F
- EtCO₂ = 28

34. What is your primary impression based on the additional information? _____

*** EMS notes while moving patient out to ambulance, she becomes less alert and more lethargic***

Re-assessment, 15 minutes after pt. contact and initial vitals obtained

- Generalized weakness, not responding to questions at all (GCS = 10)
- BP = 84/60
- HR = 130
- RR = 28
- SpO₂ = 92% RA
- EtCO₂ = 24

35. What findings do NOT align with a diagnosis of stroke?

36. What does qSOFA stand for?

37. What qSOFA criteria does this patient meet?

38. Is this patient presenting as septic or has she transitioned to septic shock? Explain your answer.

39. What is your treatment plan using your sepsis protocol?

- Oxygen: _____
- IV access: _____
- Fluids: _____
- Reassessment: _____
- Vasopressors (if needed): _____

40. What could happen if you continued treating this as a stroke only?

