

## **HENNEPIN COUNTY EMS SYSTEM MEDICAL CONTROL CERTIFICATION EXAM**

The purpose of this exam is to familiarize you with paramedic treatment protocols. The test is based on the current published version of the Hennepin County EMS Advanced Life Support (ALS) Medical Protocols, ALS Protocol Appendix, and the EMS Council approved ambulance diversion policy (available online).

It is recognized that medical control physicians have latitude in the treatment they order and, in practice, may deviate from the Medical Protocols within the limitations of the paramedics' training, approved drugs and equipment, and authorization to perform procedures. However, considering the Hennepin County Medical Protocols represent our EMS system's medical philosophy of prehospital care, please answer questions on this exam accordingly.

This is an open book exam. Please read each question carefully and select the one best answer based on system policies and ALS protocols. Unless stated otherwise, questions refer to adult patients. Return your completed answer sheet to your medical director.

---

1. Which of the following statements is correct regarding the interface between paramedics and a physician who happens to be at an emergency scene?
  - a. A physician at the scene of an emergency is legally liable if he/she refuses to assume responsibility for patient care.
  - b. It is not necessary for paramedics to establish medical control during transport if they have received orders they are comfortable with from a patient's personal physician who is at the scene.
  - c. If no medical control exists, an intervening physician who is neither the patient's personal physician nor a Hennepin County System medical control physician must agree in advance to accompany the patient during transport before the paramedics can accept orders (exception: major multiple casualty incident).
  - d. Paramedics may not accept orders from anyone other than a Hennepin County System certified medical control physician.
  
2. If an ambulance is already en route to a hospital when the hospital must close due to a temporary decrease in patient receiving capabilities:
  - a. The ambulance dispatcher should inform the ambulance of the status change and direct them to a hospital which can accept the patient.
  - b. The ambulance crew should contact the medical control physician to determine whether the patient can be seen or must be diverted.
  - c. The ambulance crew should continue transporting the patient to the hospital of the patient's choice.
  - d. The MRCC operator should review the patient's condition and potential needs to determine appropriate disposition.

3. ALS ambulances are permitted (not required) to carry Nitronox and Succinylcholine in the Hennepin County EMS System with approval of the service's Ambulance Medical Director.
  - a. True
  - b. False
  
4. Which of the following four drugs is required on all ambulances in the Hennepin County EMS System?
  - a. Lorazepam
  - b. Midazolam
  - c. Haloperidol
  - d. All of the above
  
5. Droperidol is no longer approved for prehospital use. Which of the interventions below can paramedics give on standing orders for behavioral emergencies if the patient is severely agitated and poses an immediate threat to self and others?
  - a. Versed 5 mg IV/IO/IM.
  - b. Versed 5 mg IV/IO/IM and/or Haldol 5-10 mg (dosage based on the pt age and/or weight) IV/IO/IM (may be mixed together in one syringe).
  - c. Ativan 2 mg IV/IO/IM and/or Haldol 5-10 mg (dosage based on the pt age and/or weight) IV/IO/IM (may be mixed together in one syringe).
  - d. All of the above
  
6. Which of the following would be the most appropriate first medication for a paramedic to give for a cardiac arrest patient with an EKG rate of 100 but no perfusing pulse?
  - a. calcium chloride
  - b. epinephrine
  - c. adenosine
  - d. magnesium sulfate
  
7. Which of the following drugs is not required but may be carried and used by paramedics?
  - a. vasopressin
  - b. sodium bicarbonate
  - c. glucagon
  - d. calcium chloride

8. Paramedics find a 66-year old male unconscious at home after complaining of chest pain. They are unable to obtain a BP or feel peripheral pulses but can palpate a carotid pulse. A quick look with the EKG paddles reveals a wide QRS tachycardia at a rate of approximately 150 beats per minute (BPM). Which of the following should the paramedics do on standing orders?
- start an IV and administer 6 mg adenosine
  - start an IV and administer 100 mg lidocaine
  - cardiovert the patient, start an IV, and prepare to transport
  - apply and inflate PCT and start an IV

Situation for Questions 9 and 10:

*Paramedics have responded to the victim of a shooting. They find a 30-year old stuporous male with two GSW's to the chest and snoring respirations. He appears to be in shock; vital signs obtained by the First Responders are reported to be BP=70/40, P=140, respirations=28.*

9. What additional treatment should you expect the paramedics to give this patient under standing orders?
- apply and inflate PCT, start (2) IV's at scene, and consider transport to trauma center.
  - backboard patient, consider transport to trauma center, apply and inflate PCT, then start IV.
  - backboard patient, apply but not inflate PCT, initiate diversion to a Level I or II trauma center, then start IV.
  - start IV at scene, consider transport to trauma center, apply and inflate PCT, then second IV.
10. The paramedics contact you by radio regarding the patient and report that he is deteriorating. He is unresponsive to verbal stimuli, his color is cyanotic and they cannot obtain a BP. Their ETA is 10 minutes. The most important advice you can give the paramedics is to:
- perform pericardiocentesis
  - elevate the patient's head to improve ventilation
  - auscultate lungs and check for jugular vein distention – while you consider needle thoracostomy
  - inflate PCT to improve blood pressure
11. Of the following interventions for narrow-complex tachycardia (stable or unstable), which one do paramedics not have standing orders for?
- Valsalva maneuver
  - carotid massage
  - synchronized cardioversion
  - 6 mg adenosine administration and repeat with 12 mg if no response.

12. Which of the following statements is true regarding the prehospital management of anaphylaxis according to Hennepin County ALS Protocols?
- Paramedics may give SC epinephrine or IM/IV Benadryl on standing orders for cases of exposure to a commonly recognized allergen accompanied by respiratory distress or hypotension.
  - Paramedics may give IV or IM Benadryl on standing orders for any case of suspected anaphylaxis, regardless of respiratory status or BP.
  - Paramedics may give IV epinephrine on standing orders for cases of suspected anaphylaxis if respiratory distress or hypotension is severe.
  - Paramedics may administer albuterol 2.5 mg mixed with Atrovent 0.5 mg one time.
13. The Hennepin EMS System allows ambulance providers to carry some medications based on their individual need, without requiring their use system wide. Which of the following drugs is not required in the Hennepin County EMS system?
- Midazolam
  - Magnesium Sulfate
  - Dilaudid
  - Proparacaine
14. Full spinal immobilization (c-collar and backboard) should be applied in which of the following?
- Patient slipped and fell on the sidewalk. Is now ambulatory but complaining of back pain.
  - Patient involved in a high speed front end car crash. Is ambulatory and complaining of neck pain.
  - Patient fell down a flight of stairs, no loss of consciousness, and is in the same prone position when paramedics arrive. The patient appears impaired by alcohol.
  - Patient involved in a low speed bicycle crash. Is ambulatory and complaining of shoulder pain.
15. Which of the following statements is true regarding repeat epinephrine doses for pediatric Ventricular Fibrillation/Ventricular-Tachycardia cardiac arrest?
- the initial dose should be repeated every 3-5 minutes
  - half the initial dose should be repeated every 3 minutes
  - the repeat dose should be twice the initial dose
  - the repeat dose should be ten times the initial dose

16. Which of the following procedures are not allowed for any ALS service in the Hennepin County System?
- percutaneous transtracheal ventilation
  - intraosseous infusion
  - starting a central IV line
  - rapid sequence intubation (RSI)
17. After paramedics have given an initial dose of morphine sulphate 2-10 mg, additional doses of morphine, up to 5 mg increments, may be given on standing orders every five minutes; after assessing for pain and assuring adequate blood pressure. This statement is true for which of the following protocols:
- adult chest pain suggestive of ischemia
  - pediatric pain management
  - adult pain management
  - a and c
18. For which of the following types of patients are paramedics required to establish medical control?
- all crush injuries with persistent hyperkalemia or dysrhythmias post-extrication
  - all asthma patients given bronchodilators
  - all patients on an oral agent or long-acting insulin who have experienced a hypoglycemic event and refuse transport.
  - a and c
19. A cardiac arrest patient presents with an initial rhythm of asystole. The patient remains asystolic after the paramedics administer epinephrine on standing orders. According to ALS Medical Protocols, what should the paramedics do next on standing orders?
- administer another 1 mg of epinephrine, defibrillate and contact a medical control physician.
  - if elapsed time is greater than 3- 5 minutes, may repeat epinephrine.
  - administer 50 mEq sodium bicarbonate and contact a medical control physician.
  - request an order from a medical control physician to terminate resuscitation efforts.

20. Which of the following procedures are standard by protocol and all paramedics must be capable of performing?
- blind nasotracheal intubation
  - rapid sequence induction endotracheal intubation
  - administration of nitroglycerine by IV drip technique
  - deactivation of Implantable Cardiac Defibrillators (ICDs)
21. Match the appropriate standing order for pneumatic compression trousers (PCT) you would expect paramedics to implement to each of the conditions listed below (all adult patients):
- PCT applied – not inflated without physician orders
  - PCT applied and inflated on standing orders
  - no PCT required
    - \_\_\_\_\_ suspected ruptured ectopic pregnancy, SBP <90
    - \_\_\_\_\_ unknown etiology of shock, SBP < 90
    - \_\_\_\_\_ suspected ruptured AAA
    - \_\_\_\_\_ penetrating trauma to chest, SBP < 90

Situation (Questions 22 and 23):

*The paramedics call in for a 78-year old, 85 kilo man complaining of severe substernal chest pain of sudden onset 45 minutes ago. The pain radiates into the jaw and down the left arm. The patient has no previous history of heart problems or any major medical problems. Physical exam reveals a patient in moderate distress, diaphoretic, and lungs are clear. Vital signs are BP=142/78, P=84 and irregular, respirations 24/minute. ECG reveals normal sinus rhythm with frequent and coupled PVC's.*

22. In addition to oxygen administration and ECG monitoring, which of the following will the paramedics likely have completed on standing orders?
- IV access and administer aspirin only
  - IV access, administer nitroglycerin, aspirin, and morphine sulfate 2-10 mg IV
  - IV access, administer nitroglycerin and IV morphine
  - IV access and administer nitroglycerin only
23. What lidocaine dosage would you expect the paramedics to have given the patient, or request, according to the protocols for PVC's?
- 80-120 mg followed by 40-60 mg every 5-10 min. to a total of 240 mg
  - 120 mg followed by a lidocaine drip
  - 50 mg every 5-10 minutes x 4
  - None, there is no protocol to give lidocaine for PVC's

24. Which of the following interventions is permitted, but not required, in the system and only if authorized by a paramedic's ALS medical director?
- a. endotracheal intubation of unconscious patients
  - b. needle thoracostomy for tension pneumothorax
  - c. synchronized cardioversion of conscious patients
  - d. Cricothyrotomy
25. Which patient(s) may paramedics administer an albuterol/Atrovent neb en route to the hospital without obtaining a medical control physician's order?
- a. exacerbation of COPD
  - b. acute pulmonary edema
  - c. acute asthma attack
  - d. a and c
26. Which of the following statements is true about drugs administered by the endotracheal route to adult patients:
- a. same dosage as IV administration
  - b. drug administration via the ETT route is not a sanctioned procedure in Hennepin County
  - c. half the dosage of the IV dose
  - d. four times the dosage of the IV dose
27. For which of the following patients would the paramedic have the option of connecting a saline lock to the IV access versus running IV fluids:
- a. suspected MI
  - b. burn
  - c. trauma not requiring PCT
  - d. anaphylaxis

28. Paramedics may only perform a needle thoracostomy on standing orders for which of the following patients?
- a trauma patient who is intubated and begins to develop strong evidence of a tension pneumothorax.
  - an asthma patient who is in respiratory arrest and has been intubated. Paramedics notice increasing difficulty in ventilating and the patient has signs and symptoms of a tension pneumothorax.
  - pediatric patient in asystolic cardiac arrest and paramedics have increased difficulty in ventilating. They note strong evidence of a tension pneumothorax.
  - b and c

Situation: (Questions 29 and 30)

*The paramedics contact you regarding a 68-year old male who developed sudden onset of shortness of breath of 1/2 hour duration. There was no associated chest pain or other complaints. Past medical history reveals some type of heart disease. The patient was found by the paramedics sitting bolt upright, dyspneic and cyanotic with a respiratory rate of 36. Physical exam revealed bilateral rales and jugular vein distension. BP=180/110, P=90 and irregular, and EKG shows atrial fibrillation with a ventricular response of 120. The paramedics are administering high flow oxygen by face mask, gave the patient two doses of nitro 0.4 mg tablet or two sprays, and then obtained IV access. Two minutes later, after checking the BP and finding it 170/110, they administered another nitro dose of 0.4 mg. Five minutes have passed and the BP is still at 170/110. They state the patient is becoming very lethargic and less responsive to verbal stimulation.*

29. Which treatment modality under the ALS protocols would it not have been appropriate for the paramedics to carry out under standing orders prior to contacting you?
- administer aspirin 160 – 325 mg
  - administer 10 cm H<sub>2</sub>O of CPAP if available
  - administer additional 0.4 mg nitroglycerin
  - administer 2-4 mg morphine sulphate
30. If the patient's condition remains unchanged, the first treatment order listed in the protocols for consideration After Obtaining Verbal Orders is:
- There are no after obtaining verbal order considerations
  - 2-4 mg morphine sulphate
  - additional doses of nitroglycerin
  - nebulized albuterol 2.5 mg en route for bronchospasm

31. Match below the appropriate BP parameter to each intervention you would expect paramedics to perform under standing orders:

1. irrespective of BP

2. SBP > 110

3. SBP < 90

4. SBP > 140

5. SBP > 90

a. \_\_\_\_\_ Nitroglycerin for cardiac pain

b. \_\_\_\_\_ Atropine 0.5 mg for patient in bradycardia with chest pain

c. \_\_\_\_\_ Epinephrine (1:1000) 0.3 mg or adult EpiPen IM for anaphylaxis to known allergen with respiratory distress

d. \_\_\_\_\_ Nitroglycerin for suspected pulmonary edema

e. \_\_\_\_\_ PCT inflated for signs and symptoms of intra-abdominal bleed and suspected pelvis fracture

f. \_\_\_\_\_ Penetrating chest trauma, no BP and unresponsive: run IV wide open until \_\_\_\_\_

g. \_\_\_\_\_ Cardioversion of conscious patient in ventricular tachycardia

h. \_\_\_\_\_ Adenosine for PSVT with no serious signs or symptoms

32. For the treatment of an adult patient with profound agitation, which medication would be the most appropriate to administer?

a. Morphine Sulfate

b. Droperidol (Inapsine)

c. Ketamine

d. Succinylcholine

33. The definition of profound agitation in an adult patient includes?

a. The patient is demonstrating active physical violence to himself/herself or others and usual chemical or physical restraints may not be appropriate or safely used.

b. Risk of damage to property

c. Can be effectively controlled via typical chemical restraints including Versed and/or Haldol

d. Can be effectively controlled with the use of soft restraints