

Northwest Community EMS System
January 2025 CE: Adult and Pediatric Sepsis
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.

Sources of information/answers

Jan CE PowerPoint PDF, NWCEMSS SOPs, NWC EMSS Jan Continuing Education Case Studies, Pulse ox skill sheet

1. Which of the following statistics are NOT true (may be multiple answers)? (PPT slide #11)
 - A. Sepsis is the #1 cause of death in hospitals
 - B. It is the most common reason for readmission
 - C. It is the second most expensive medical condition at \$12 billion dollars annually
 - D. There is up to an 80% mortality rate associated with septic shock
 - E. There are 1 million cases of sepsis annually in the US

2. According to the “EMS critical facts” slide, administration of IV fluids by EMS before arriving at the hospital, significantly reduces _____ in severely septic patients. (PPT slide #12)

3. EMS providers that are trained in sepsis screening, assessment, protocol and alerting the receiving hospital of a sepsis alert, have a lower mortality rate than the overall EMS mortality rate. What percentage lower is that mortality rate? (PPT slide #12)
 - A. 13.6%
 - B. 21.4%
 - C. 11.2%
 - D. 37.0%

4. _____ and _____ of sepsis is the key to successful management of sepsis. (PPT slide #26)
 - Sepsis alert and antibiotic administration
 - Recognition and treatment
 - End-tidal and fluid management

5. List 4 patient populations that are more susceptible to getting sick and/or developing and infection. (PPT slide #16)

6. List 5 signs and symptoms of viral and bacterial infections. (PPT slide #18)

7. What are the top 3 most common infections found in patient's residing in a nursing home? (PPT slide # 19)
- A. _____
 - B. _____
 - C. _____
8. Select all of the following symptoms that can be associated with a urinary tract infection. (PPT slide #21, 22)
- A. Abdominal pain
 - B. Oozing wound
 - C. Cloudy/foul smelling urine
 - D. AMS
 - E. Loss of appetite
 - F. Burning while urinating
 - G. Increased frequency and urgency to urinate
 - H. Productive cough
 - I. Feeling fatigued/weak
 - J. Confusion
9. Fill in the blank: Often times, especially in the elderly population, one of the first signs of an infection is a _____ or a change in _____. (PPT slide #23)
10. qSOFA is a 'quick sequential organ failure assessment' that helps EMS identify patients with suspected infection that are at a greater risk for poor outcome. What are the 3 components of qSOFA and the specific criteria for each component? (PPT slide #27, 28)
- a. _____
 - b. _____
 - c. _____
11. Lactate is a marker of illness severity in acutely sick patients. For patients with sepsis or in septic shock, they will have elevated levels of lactate. EMS does not directly measure lactate in the prehospital setting, however there is a monitoring device that will provide an indication of what lactate levels the patient is experiencing. What is this measurement tool? (PPT slide #32, 33)
- a. Blood pressure
 - b. Pulse oximetry
 - c. Capnography
 - d. Blood glucose
12. Based on SOPs and this month's CE, which of the following matches the definition of SEPSIS? (SOPs, PPT slide #35)
- a. S/S of infection + HR > 100 + fever
 - b. Fever + SBP < 90 + AMS + EtCO₂ < 31
 - c. EtCO₂ ≤ 25 + SBP ≤ 90 + RR ≤ 20
 - d. S/S of infection + EtCO₂ ≤ 32 + 2 or more qSOFA
13. – 15. True or false (PPT slides 12, 13 and 38)
- a. EMS has a transport time of less than 5 minutes to the hospital, there is no value in starting care prior to arriving at the hospital, it will only slow down necessary tx at the hospital. True or False
 - b. Initiation of IV fluids in the prehospital setting by EMS does not reduce the odds of death in severely septic patients. True or False
 - c. One episode of hypotension in a sepsis patient significantly increases morbidity and mortality. True or False

16. What are the two main underlying physiologic conditions that EMS is addressing with their treatment of sepsis/septic shock? (PPT slide #43)

17. Fill in the blank: According to Dr. Antevy, the Asst Medical Director at Palm Beach: (PPT slide # 44)

“_____ for sepsis is as important as blood is for trauma.”

18. EMS is caring for a 76 y/o female patient who they suspect has a UTI. Patient presents as confused (not their norm), with vitals as follows: HR = 110, BP = 94/70, RR = 18. Her EtCO₂ is 30. What is the indicated treatment for this patient? (PPT slide #45; SOP p 41)

- a. Norepi at 8 mcg/min to achieve SPB ≥ 100
- b. 2 mg versed to calm the patient
- c. 200 ml fluid bolus to achieve SPB ≥ 100
- d. Fentanyl for pain management

19. EMS has a 62 y/o male patient who has not been feeling well for the past few days. Family states he has been getting weaker the past day or two and does not have much of an appetite. EMS notes the patient has an increased work of breathing and has an elevated respiratory rate of about 30 breaths per min. They note a temp of 101.7°F. In addition, he is slightly altered on a few of his orientation questions and seems lethargic. Remainder of vitals are as follows: BP = 76/50, HR = 90, EtCO₂ = 23. Which of the following is indicated? (PPT slide #46; SOP p 41)

- a. Epi 1/10 0.1mg q 1 minute to achieve SBP ≥ 90
- b. 200 ml fluid boluses to max of 500ml; if no improvement in BP then Norepi 8 mcg/min to achieve SBP ≥ 90
- c. 500 ml consecutive fluid boluses up to 1 liter total to achieve SBP ≥ 90
- d. Norepi at 8 mcg/min to achieve SPB ≥ 90

20. Select all of following patients that should have a sepsis alert called. (More than one answer). (SOP p 41)

- a. Fever, productive cough w/yellow sputum, RR = 28, AMS, BP = 104/80, EtCO₂ = 29, HR = 110
- b. Cloudy, foul-smelling urine, decreased appetite, hard to arouse, RR = 18, BP = 96/58, ETCO₂ = 30
- c. Recent knee replacement, surgical site appears infected, GCS = 15, RR = 16, BP = 114/82, HR = 108
- d. N/V x 2 days, abdominal pain, weak, BP = 122/78, HR = 90, RR = 14, GCS = 15, EtCO₂ = 40
- e. Cancer patient not feeling well, low grade fever, GCS = 13 (norm = 15), RR = 20, BP = 80/50, ETCO₂ = 21

21. List the 3 types of shock that occur in pediatric patients with sepsis/septic shock. (PPT slide #55)

22. Which of the following is/are challenges that EMS faces in identifying indicators of sepsis in children? Select all that apply. (PPT slide #56)

- Symptoms are very obvious and specific to peds-aged patients
- Children typically compensate well, then abruptly deteriorate
- Febrile illnesses occur commonly in children, so EMS must assess carefully for S&S that may signal sepsis

23. True or false: When presented with a child who is clearly sick but with no clear cause, EMS should obtain hx and assessment aimed at identifying possible findings that may signal sepsis. (PPT slide # 57)

- True
- False

24. Which of the following should EMS ask themselves FIRST when evaluating a child who is sick? Select all that apply. (PPT slide #59)

- Does the child have an infection?
- Does the child have risk factors for infection?
- Does the child have S&S suggestive of infection?

25. Following the above consideration, what is the first "assessment" that should be made? (SOP p 90)

26. Watch the video from the link below. Then answer the following question: When monitoring pediatric pulse ox, to ensure as accurate a reading as possible, what criteria must the sensor site meet? (PPT slide # 60)

https://www.ems1.com/ems-training-and-education/are-your-pulse-ox-readings-messed-up?utm_source=delivra&utm_medium=email&utm_campaign=EMS1-Daily-12-4-24&utm_id=8174826

27. List the recommended site for monitoring SpO2 for the following ages. (NWC EMSS Pulse Ox skill sheet)

Neonate: _____

Infant: _____

1yr and older: _____

28. After assessing the above, what is the next value that should be assessed? (SOP p 90)

- EtCO₂
- Pulse ox
- Blood pressure
- Respiratory rate

29. What do the following ranges of EtCO₂ readings correlate with in sepsis and septic shock? (SOP p 90)

EtCO₂ ≤ 31: _____

EtO₂ < 25: _____

30. List the 3 qSOFA criteria, and the assessments made for each of those 3 body systems. (SOP p 90)

31. Automated peds BP readings may be inaccurate in the setting of hypotension/hypoperfusion. What action should providers consider to ensure as accurate readings as possible? (PPT slide #65)

32. Indicate for each of the following whether it is indicative of “0” infection but no sepsis, “1” sepsis, or “2” septic shock. (SOP p 90)

_____ + UTI; EtCO₂ 28; SBP >70 + (2 X age); alert; rapid pulse; cap refill >3 sec

_____ High risk for infection; SBP 66-70; slow to respond; EtCO₂ 20; weak radial pulse

_____ Suspected infection; fever; SBP > 70 + (2 X age); normal mental, resp and cardiac; EtCO₂ 35

_____ Recent kidney transplant; fatigued; confused at times; weak pulses; EtCO₂ 30; SBP > 70 + (2 X age)

33. Which of the patients from the question above should have venous access? (SOP p 90)

Please refer to the PCR for the 10/F with AMS and SOB. Then answer questions 14 - 20.

34. List any potential sepsis-related findings for the following assessments for this patient.

Infection Risk/S&S/Source	SpO ₂	EtCO ₂	Neuro qSOFA	Resp qSOFA	Cardiac qSOFA

35. IVF are indicated for this patient. Answer the following re: your interventions and monitoring. (SOP p 90)

Calculate the volume to be administered: _____

36. Fluid should be delivered at what rate/within what time? (SOP p 90)

36. What will your target SBP and MAP be? (SOP p 90)

38. If the SBP/MAP do not improve with fluids, what would be indicated next? Specify dose/volume for a patient of this patient’s weight. (SOP p 90 and p 110; PPT slides #71 and 72)

39. How many IV lines are needed for EMS to administer NorEpi drip to a pediatric patient? (SOP p 90)

40. Procedure for NorEpi administration to pediatric patients requires that EMS only do so if they have access to what device? (SOP p 110)
