

Northwest Community EMS System
October 2019 CE: Chest, Abd and M-S Trauma

Name:	Date submitted:
EMS Agency/hospital:	Credit awarded (date):
EMSC/Educator reviewer:	Returned for revisions:
	Revisions received:

This packet should take 2 hours to complete – which earns you the equivalent of the 2 hour live CE class.
 Sources: Oct 2019 CE handout; NWC EMSS SOPs; Oct CE Resource Document (website); Hyfin Vented Chest Seal Product Information (website).

Answer questions 1 – 12 after reading Scenario #1 below.

Scenario #1: EMS is called to a residence for an adult with chest pain after being stabbed by an intruder. Law enforcement confirms the scene is safe. A restless adult male who appears very uncomfortable is found sitting on the sofa, holding his chest. There is a 3-inch diameter spot of dark red blood on the left side his shirt. He reports a burning sensation in his left chest and pain when he breathes. He states, “I can’t catch my breath”.

Primary assessment:

Airway	Patent
Breathing	Dyspneic; RR rapid; breathing is shallow & labored; no movement of the Lt lat chest; breath sounds are absent on Lt, diminished on Rt. RA SpO2 89%; EtCO2 30
Circulation	Radial pulses very weak, carotids fast. Skin is dusky, cool, and clammy. + JVD.
LOC	Eyes open spontaneously; speech is oriented; follows commands; moves all extremities; PERL

Secondary assessment:

VS	BP 96/72; P 136; RR 32.
HEENT	No DCAP BLS TIC to head or neck
Neck	Trachea midline; jugular veins flat
Chest	1 inch linear wound left medial chest wall, lateral to mid-clavicular line, approx. ICS 5; pain to palpation over same; bubbles noted in wound w/ expirations; heart sounds muffled
Abdomen	Soft and non-tender
Skin	Dusky nail beds; circumoral cyanosis; cool, pale, diaphoretic skin
Neuro	GCS 15; PERL; SMC intact to all 4 extremities
Pain	10/10

1. What chest injury do you suspect? Support your answer by listing at least 5 findings from history and or physical assessment.

Injury:	
Supporting Findings	
1	2
3	4
5	

2. A penetrating wound through the chest wall creates an opening into the pleural cavity. Explain the effect with regards to normal intrapleural pressure that accounts for the patient's resulting difficulty with or inability to breathe.

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3. Describe the actions you would take (how to do it) to manage this patient's injury.

4. After the above interventions, the patient becomes extremely dyspneic and agitated / anxious. HR increases to 140-150, SBP falls below 90, radial pulse is no longer palpable (carotid still palpable), and you note JVD. What condition has this patient developed?

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5. What would you expect to find when auscultating lung sounds?

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6. What is the cause of the JVD?

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7. Explain the pathophysiology of obstructive shock.

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8. What is the purpose of needle pleural decompression?

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9. List **two** assessment findings other than VS that indicate success of this procedure.

10. Describe anticipated breath sounds on the affected side on auscultation.

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Read Scenario #2 below. Then answer questions 13-15.

Scenario #2: A construction worker has fallen from a 30 ft scaffolding, hitting a pile of bricks before landing on the ground. He is in mod-severe resp distress, repeatedly crying out, "my chest!" He is clutching his arm over his chest with his Rt hand. You note widespread contusions, abrasions, and discoloration over his entire left chest. Palpation reveals crepitus mid-chest from ICS 4-8. Respirations are shallow, and the left chest appears to move less than the right. Lung sounds on the left are diminished; clear on the right. Skin is pale and moist. Jugular veins are flat. Periph pulses are weak. VS: BP 112/88, HR 118, R26, SpO2 89%, ETCO2 29.

The patient becomes slow to respond. His skin is cool and moist, his color is dusky. Resp distress is severe, and pulse ox falls in spite of assisted ventilations w/ 15L O2. VS: BP 88/60, HR 134, RR assisted at 10. Breath

sounds are now absent on the left, and the left chest does not rise with ventilations. You note bloody secretions when he is suctioned.

11. What chest injury do you suspect?

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12. List two findings in this patient's presentation prompted you to select your answer to #13?

13. What interventions are needed with regards to:

Airway:
Why did you choose to do this?
Hypotension:
What is your SBP target?

Read Scenario #3 below. Then answer questions 16-19.

Scenario #3: An elderly man is found on the grass with a ladder nearby. A neighbor tells you he saw the man on the roof cleaning the gutters 15 min prior. His left lower leg appears deformed. He is moaning and opens his eyes when he is spoken to. His breathing appears labored, fast, and shallow. Skin is cool, dry and pale, and radial pulses are fast and mod weak. He is holding his hand against his right chest. Breath sounds equal. A portion of the patient's chest on the Rt sinks in when the rest expands.

14. What injury do you suspect? Support your answer with assessment finding(s) that prompted you to choose that answer.

Injury:
Finding(s):

15. Describe this injury in terms of what happens to the ribs to create this condition

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16. What intervention is indicated to support this patient's breathing?

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17. This intervention is contraindicated in the presence of **what chest injury / abnormality**, evidenced by unequal or diminished lung sounds?

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Read Scenario #4. Then answer questions 18 – 20

Scenario #4: A 19 y/o male was stabbed in the chest with an ice pick ~ 15 min ago. He is c/o pain and difficulty w/ breathing. He is agitated & diaphoretic. He has a small wound to the left of his sternum at IC 4,

slowly oozing dark red. Radial pulses are not palpable. He is cool, pale, and moist. Lungs are clear and equal. Heart sounds are muffled, and you note JVD as this patient is sitting upright.

18. What chest injury do you suspect?

19. What structures are compressed in this injury, and what result does it have on venous return?

Read Scenario #5. Then answer question 20

Scenario #5: A 59/M has crashed his car into a jersey barrier on the tollway. He is awake, c/o severe chest pain, trouble breathing, and faintness. The steering column is bent. Breathing is shallow & splinted. Skin is cool & pale. Radial pulses are mod strong but irreg. You note abrasions and mild bruising and redness over the sternum, w/ pain and crepitus to both sides of the sternum to palpation. ECG shows SR w/ frequent multiformed PVCs.

20. What chest injury do you suspect?

21. You are assessing a patient involved in a rapid, high speed deceleration injury. Assessment findings include severe retrosternal chest pain, severe dyspnea, crepitus to palpation over sternum, no JVD, clear lung sounds, absent femoral pulses, and severe agitation. What traumatic injury do you suspect?

22. What is the desired systolic BP target for the injuries in both questions 20 and 21?

23. Complete the following Trauma Level table for each injury:

Injury	Trauma Center Level
Tension pneumo	
RR > 29 or < 10	
Flail chest	
Blunt abd trauma, BP 112/78, P96, R 22, SpO2 95%	
Need for assisted ventilations	
Pneumothorax assoc w/ blunt trauma, VS WNL	

Read Scenario #6. Then answer questions 24 and 25.

Scenario #6: A 29 y/o restrained drive has been extricated from a 1964 corvette. The driver's side of the car was found against a power pole along a 4-lane road (posted speed 45 mph). Lap belt restraint was in use. There was significant intrusion into the driver's side door.

Primary Assessment	
Airway	Patent
Breathing	Labored; rapid; breath sounds normal; equal bilat.
Circulation	Radial pulses rapid and weak; skin pale and cool to touch; ECG: ST w/ PVCs
Disability/neuro	Eyes closed (1); verbal-moaning only (2); does not follow commands but localizes pain (5); PERL but sluggish
Secondary Assessment	
VS	BP 88/60; P 116; RR 24; SpO2 92%; pulse pressure 28
HEENT	Abrasions to face; L forehead lac, 2 in., oozing dark red; dried blood on lips
Neck	Trachea midline; jugular veins flat
Chest	No DCAP BLS TIC; equal expansion; heart sounds clear
Abdomen	Generalized tenderness; abrasions w/ mild ecchymosis across lower abd.
Pelvis and Extremities	No instability; no DCAPBLSTIC

24. What injury would account for this patient's assessment findings and shock?

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25. Describe indicated interventions for this patient regarding the following:

SMR	
Oxygenation	
Vascular access (catheter size and number of lines)	
Temperature of NS	
Shock management: SBP target	
Trauma Center Level	

26. Increasing pressure related to bleeding or swelling in a closed compartment surrounded by an inelastic membrane is transmitted to the nerves and vessels within that compartment. The result of this increasing pressure is compromised circulation and sensation. Which one of these does this paragraph describe?

- Crush syndrome
- Flesh-eating disease
- Deep vein thrombosis
- Compartment syndrome

27. How would you expect a patient to describe pain that is due to this neurovascular compromise?

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28. What is peculiar about the patient's perceived level of pain related to your assessment of the severity of the injury?

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29. What assessment finding will be noted when pulses distal to the injury / area of complaint are assessed?

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30. What intervention guidelines apply with regard to maintaining perfusion to the involved area/tissues?

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31. Use of what musculoskeletal injury management device(s) is known to precipitate this condition?

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32. To what level trauma center should this patient be transported?

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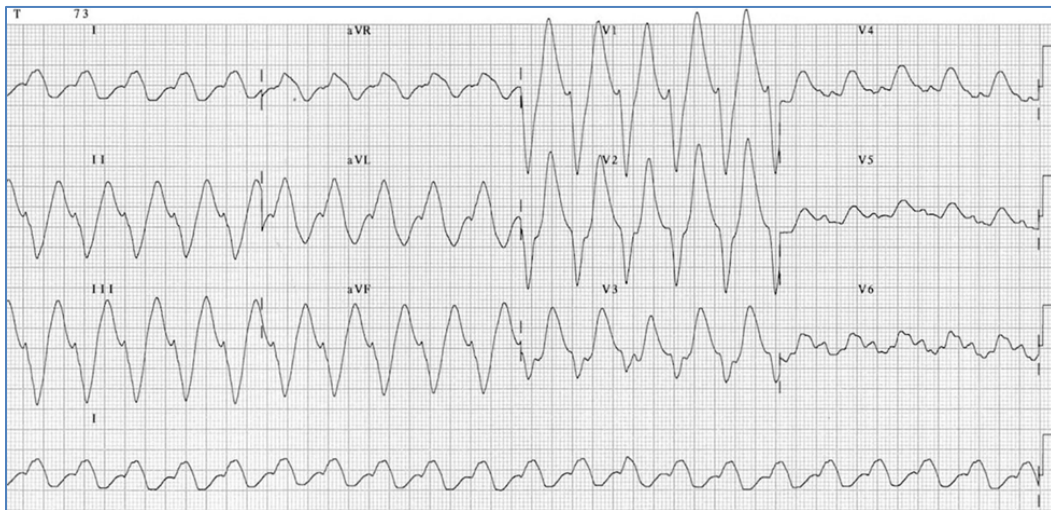
33. EMS is dispatched to an adult male who was found pinned between his running taxi and a brick wall for an estimated time of 3 – 4 hours. His supervisor found him, both upper legs / hips pinned between the car and the wall. The supervisor moved the taxi and positioned the patient on the ground nearby. The supervisor states the patient was moaning in pain when he found him. Upon EMS arrival, the patient is restless and confused. He does not open his eyes, but cries out to painful stimuli. Airway is patent. Breathing is rapid, unlabored. Lungs are clear bilat. Radial pulses are rapid and weak. Skin is cool and pale. BP 100/70, HR 124, RR 30. SpO2 91%. ETCO2 30. Blood glucose 150.

What condition does this scenario describe?

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34. Had EMS arrived *prior to release* (before the patient's legs were released from entrapment), what **two** proactive interventions would have been indicated?

35. An IV is established quickly and the patient is placed on the cardiac monitor. ECG appears as follows:



What two interventions are indicated?

36. Explain the effects of the 3 toxins that build up and are released from the compressed tissues:

Lactic acid	
Potassium	
Myoglobin	

37. What is the goal of rapid NS infusion related to the above 3 toxins?

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38. To what level trauma center should this patient be transported? List the criteria by which you chose your response:

Trauma level	
Criteria	

39. EMS is on the scene of an adult male suspended in a harness. Immediate release has not been possible. The patient is still conscious and is complaining of lightheadedness and tingling in his legs. What instructions should be given to this patient?

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40. Upon release, how should the following patients be positioned on your cot?

Patient is awake:
Patient is unconscious: