

**Northwest Community EMS System**  
**October 2023 CE: ECG Rhythms, 12Lead, and HF**  
**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.

**Source of information/answers:** October 2023 CE PPT PDF; SOPs; Vagal Maneuver Skill Sheet

1. What initial medical care interventions are indicated for all patients with cardiac rhythm disturbances? List all four. (SOP p 17)

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2. An 80/F experienced near-syncope while grocery shopping. Witnesses state she did not lose consciousness and she was assisted to the floor. She is sitting in the aisle, leaning up against a shelf of boxed cereals. She is slow to respond, and complains of lightheadedness, dizziness, and nausea. Pulses are slow and weak. Skin is pale, cool and clammy. BP 86/56, RR 18, unlabored, SpO2 90%, EtCO2 27, square. Lungs are clear. Rhythm as below. (SOP p 3 and 17)



Rhythm: \_\_\_\_\_ Rate: \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

EMS is unable to obtain venous access. What should be done immediately to stabilize this patient?

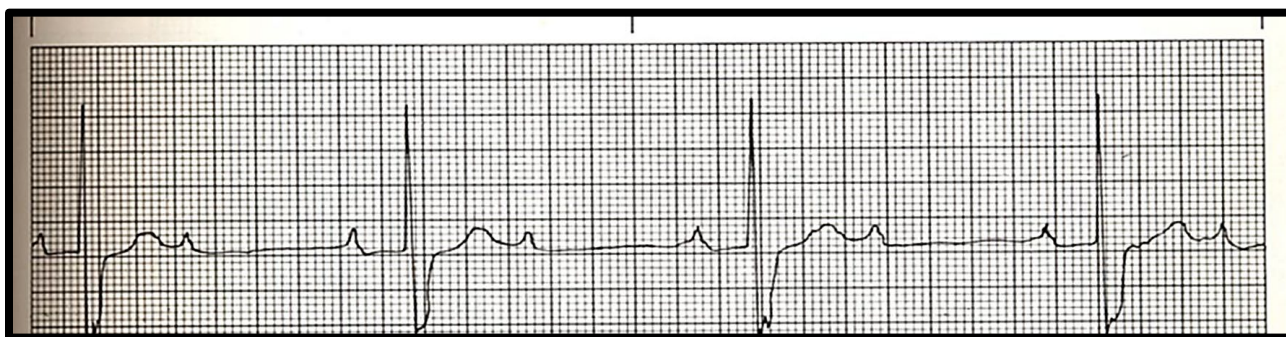
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What method of O2 delivery should be provided to this patient? \_\_\_\_\_

3. EMS has 2 options for sedation and pain management when pacing and cardioverting patients. EMS must choose one option while considering the patient's current condition and history, the intended effect, and possible negative side effects of each. Complete the following: (SOP drug index)

	Midazolam and Fentanyl	Ketamine
Action		
Contraindications / precautions		
Side effects		

4. An adult complains of sudden SOB and weakness while working at his computer. BP 94/62. Pulses slow and weak. Skin pale, dry. Resp unlabored, lungs clear. SpO2 93%, EtCO2 32, square. Feels better when reclining or lying down. PMH: HTN, angina. Meds: Atenolol; NTG SL. ECG rhythm as follows.



Rhythm: \_\_\_\_\_ Rate \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

Interventions (list at least 3): \_\_\_\_\_

Should this patient receive atropine? Why? \_\_\_\_\_

5.



Refer to the ECG strip above (#5) when answering the following. An adult reports sudden onset of chest pain and SOB while exercising. He is light-headed and dizzy. Skin is pale, clammy and cool, and he is slow to respond. Breathing is mildly labored, RR 22. SpO2 92%. EtCO2 30, square. Lungs are clear. SBP 86. Pulses are fast and weak.

Rhythm: \_\_\_\_\_ Rate: \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

O2 (delivery device and Liters) \_\_\_\_\_

Vascular access, rate or volume: \_\_\_\_\_

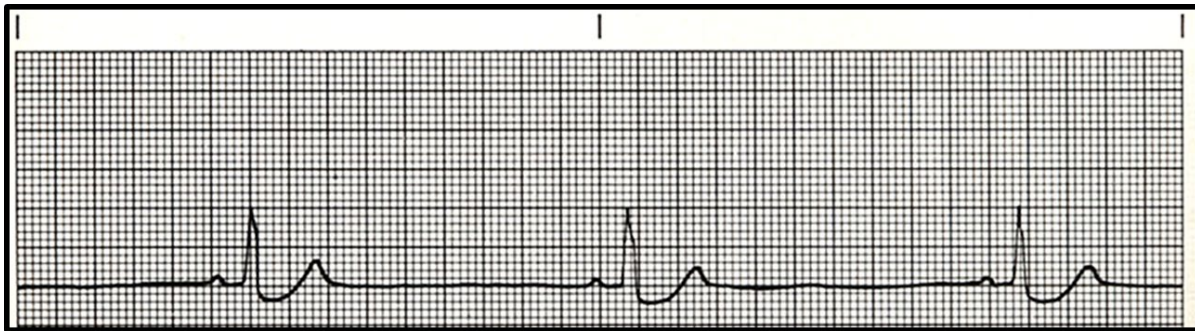
Electrical therapy pads – Yes or no? \_\_\_\_\_

ASA 324 mg chewed & swallowed – Yes or no? \_\_\_\_\_

Describe the patient w/ this rhythm for whom Amiodarone would be indicated (LOC, VS, perfusion signs)

What intervention is indicated to stabilize this pt? \_\_\_\_\_

6. An elderly female is found on the sofa by her family at 1000. She was last seen normal at 9pm last night. Unable to do a stroke screen – pt does not follow instructions. Responds to noxious stimuli. Pupils equal, 4 mm, midline, reactive. Skin cool, dry, pale. bG 82. BP 78/50, HR 30, R 14, unlabored. Pulses slow and weak. Lungs clear. SpO2 90%. EtCO2 28, square. PMH: HTN, a fib, angina. Meds: Cardizem, digoxin, NTG, Eliquis. You are having difficulty obtaining venous access.



Rhythm: \_\_\_\_\_ Rate: \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

O2 (delivery device & Liters) \_\_\_\_\_

Electrical therapy pads – Yes or no? \_\_\_\_\_

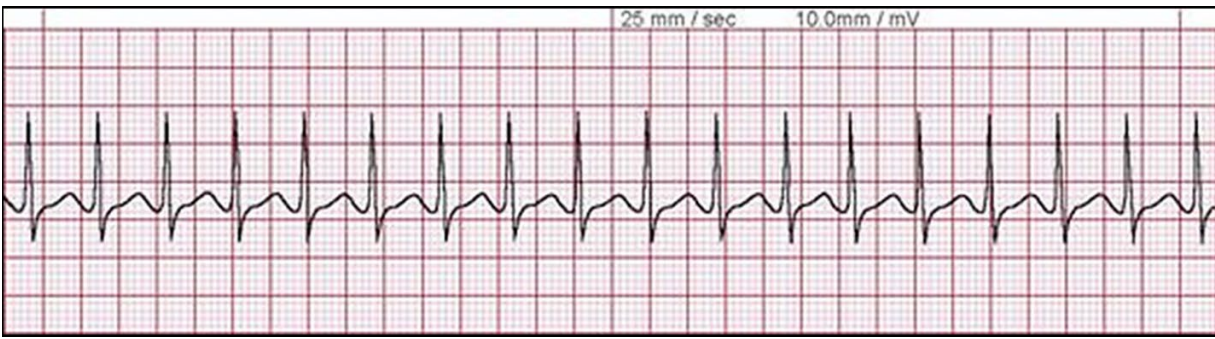
What intervention is indicated to stabilize this pt? \_\_\_\_\_

How would you treat if you were able to get venous access right away? \_\_\_\_\_

What if the pt did not improve with Atropine or pacing? \_\_\_\_\_

7. A 44/M suddenly becomes light-headed and SOB while cooking dinner. He immed goes to lie down as he feels he is about to faint. Pulses are fast and weak. Skin is pale and clammy. BP 90/58. RR 22, mildly labored. Lungs clear. SpO2 90%. EtCO2 31, square. PMH: HTN. Meds: Captopril and ASA. Similar episodes in the past have resolved spontaneously, and were never accompanied by SOB or light-headedness. His ECG rhythm is as follows:





Rhythm: \_\_\_\_\_ Rate: \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

What intervention should be attempted first? \_\_\_\_\_

Describe actions / instructions comprising the 3 main steps:

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

8. A 42/M reports sudden onset of palpitations and SOB. States he ate 2 THC gummies 1 hr ago. He is now feeling mild pressure in the middle of his chest, like he can't get a full breath. PMH of SVT, treated w/ Flecainide. Past SVT episodes did not cause chest pressure. RR 18, unlabored. Lungs clear. SpO2 93%. EtCO2 32, square. Skin cool, dry. BP 106/56. ECG is as follows:



Rhythm: \_\_\_\_\_ Rate: \_\_\_\_\_

Level of acuity per SOP: \_\_\_\_\_

Electrical therapy pads – Yes or no? \_\_\_\_\_

What intervention should be attempted first? \_\_\_\_\_

There is no improvement. Next intervention? \_\_\_\_\_

Still no improvement. Explain the next indicated intervention, including dose, energy, timing, etc if they apply.

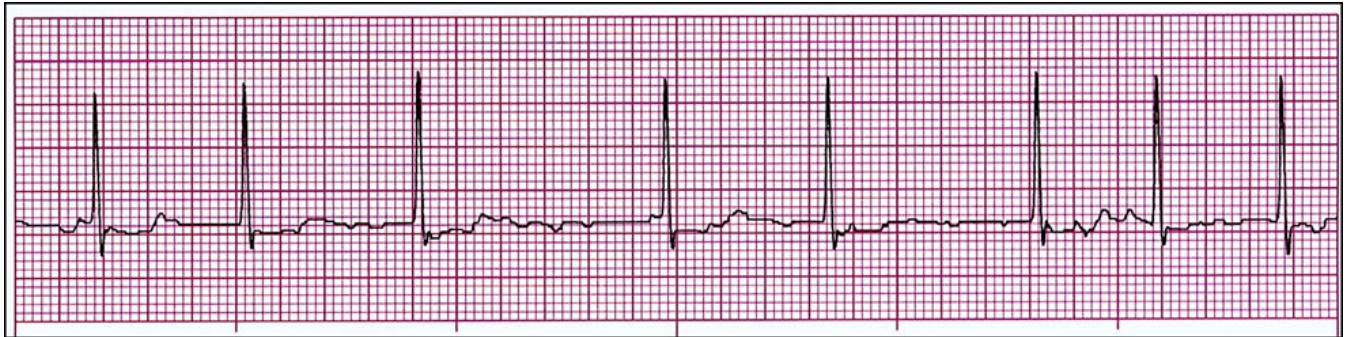
9. Atrial flutter is created by an ectopic circular pathway in the atria (not the SA node), which depends on calcium to perpetuate the excitation & contraction in those cells. Explain why Verapamil is used to treat atrial flutter, instead of adenosine. (Slide 7; SOP Drug index)

10. Which of the following may help a provider to distinguish atrial flutter from other rapid rhythms? (Slide 8)

- ☐ Does the patient take calcium channel blockers?
- ☐ Does the rate fluctuate when the patient moves or exerts themselves?
- ☐ Is there a physical or physiologic reason for the patient to be tachycardic?

For the following rhythm strips, document both the rhythm AND the rate.

11.



12.



13.

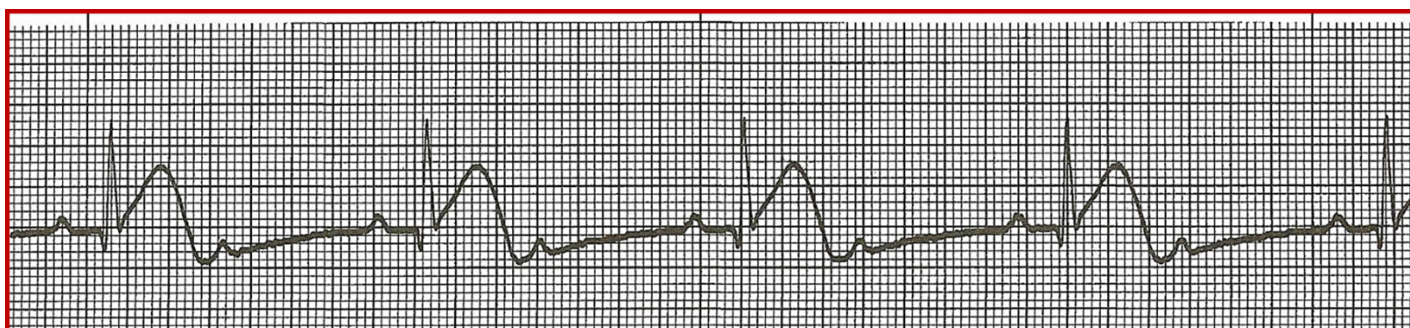




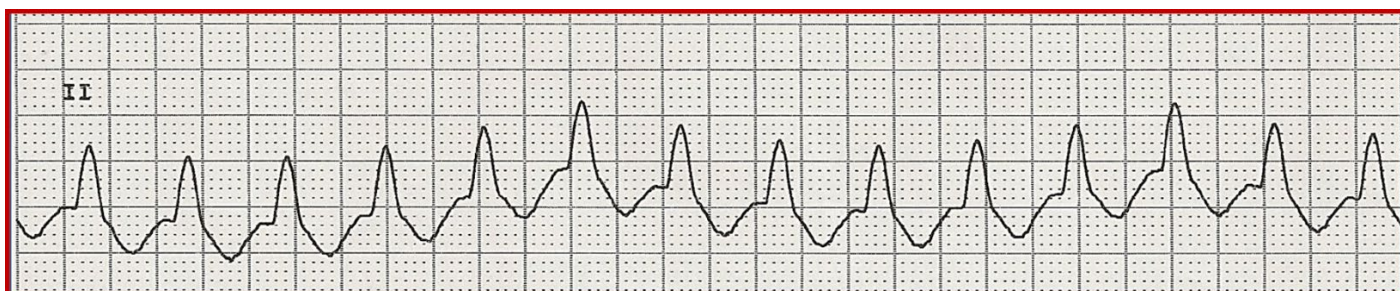
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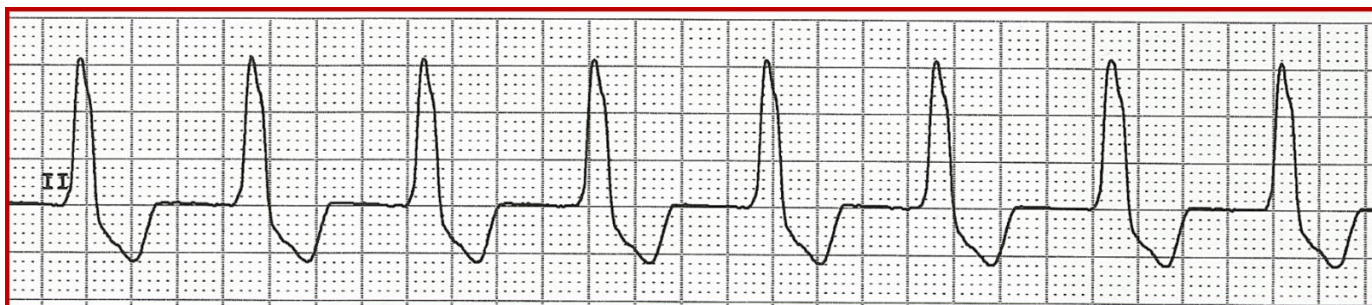
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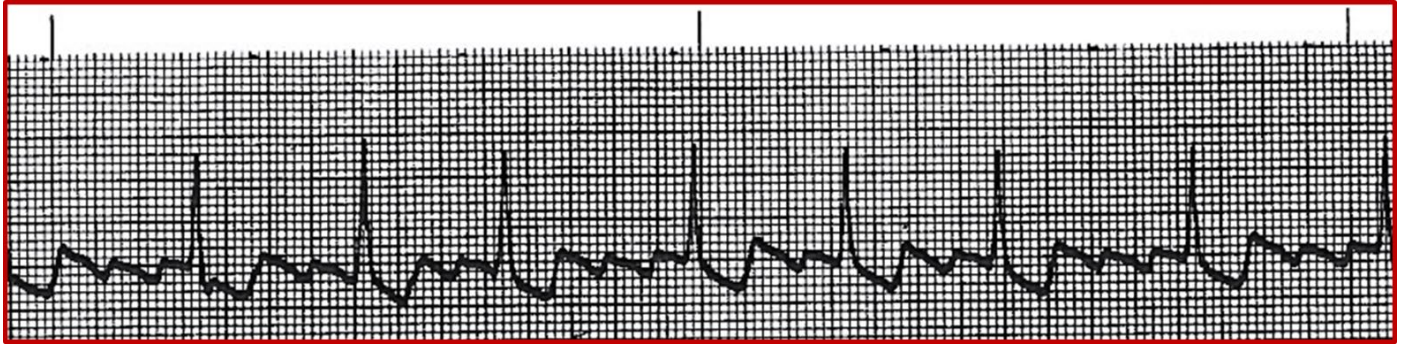
16.



17.



18.



19. What are 3 different findings on a 12Lead that are strongly indicative of ischemia? (Slide 13-17)

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_

20. Which of the following are true regarding posterior wall MI (PWMI)? Circle all that apply. (Slides 18-19)

- a. Include risk for Rt ventricle involvement
- b. When they occur, infarct is usually smaller and less severe
- c. Occur as a complication of inferior (IWMI) or lateral wall MI (LWMI)
- d. IWMI and or LWMI's accompanied by ST depression in leads V1 – V3 should prompt suspicion for PWMI

21. Which of the following should be completed **for all patients** who present w/ any of a narrow or wide, slow or rapid rhythm with a pulse? Circle all that apply. (SOP p 17, 18, 19)

- a. Pulse ox
- b. 12Lead ECG
- c. Cardiac monitor
- d. Call a cardiac alert
- e. Venous access for all patients
- f. Blood glucose if AMS (treat as needed)
- g. O2 if SpO2 <94% (<92% for COPD) or pt short of breath

22. View slide 23 and complete the following:

STE? \_\_\_\_\_

What is your interpretation? \_\_\_\_\_

23. View slide 24 and complete the following:

STE? \_\_\_\_\_

What is your interpretation? \_\_\_\_\_



24. View slide 26 and complete the following:

STE? \_\_\_\_\_

What is your interpretation? \_\_\_\_\_

What should be considered regarding the ST depression seen in Leads V1, V2 and V3 (esp V2)?

\_\_\_\_\_

25. View slide 27 and complete the following:

STE? \_\_\_\_\_

What is your interpretation? \_\_\_\_\_

26. View slides 28-30. Then complete the following:

What is this patient's rhythm? \_\_\_\_\_

Should this pt's bradycardia be treated right now? \_\_\_\_\_

In addition to IMC, including venous access, what measure should be taken as a precaution, in case the patient becomes unstable / deteriorates? (SOP p17)

\_\_\_\_\_

View the 12Lead. Interpretation? \_\_\_\_\_

What medication should be given, considering the 12Lead result? \_\_\_\_\_

27. Read the scenario and accompanying information on slide 31 – 32.

What is your interpretation? \_\_\_\_\_

According to SOP, at what level of severity is this patient presenting? \_\_\_\_\_

Attempts at venous access are unsuccessful so far. Which intervention to treat this pt's rate is most appropriate at this time? \_\_\_\_\_

28. What lung sounds might you hear in a patient with HF? (SOP p 22) Select all correct answers.

- ☐ Stridor
- ☐ Crackles
- ☐ Wheezes
- ☐ Isolated rhonchi

29. List 5 actions indicated for all patients w/ S&S of heart failure, who are hemodynamically stable and alert. (SOP p 22)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_



30. In addition to SOB, what other findings or complaints may patients with HF present with? Choose all correct answers. (SOP p 22)

- a. JVD
- b. Fever
- c. Peripheral edema
- d. Substance use disorders
- e. Cough productive of thick, white sputum
- f. Inability to breathe adequately when supine
- g. PMH cardiac disease, arrhythmias, or HTN

31. Capnography numbers and waveforms assist EMS to differentiate a presentation of HF from COPD/asthma. Complete the following:

	Capnography numbers	Capnography waveform
COPD/Asthma		
Heart failure		

32. Explain the action and resulting benefits of CPAP for patients with HF. (Slide 38)

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33. Explain the action and resulting benefits of NTG for patients with HF. (Slide 40)

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34. What is the maximum dose of NTG, for patients being treated for HF, and how often should it be given? (SOP p 22)

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35. Albuterol and ipratropium are not recommended interventions for patient with HF. Complete the following: (SOP p 97 and 100)

What physiologic problem are albuterol and ipratropium indicated to treat, that does NOT occur in HF?

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What contraindications, precautions, and side effects make albuterol a treatment to be avoided when treating patients with HF? List two.

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Read the scenario and associated info on slides 48-50 to answer qu 36, 37, 38. (SOP p 22)

36. What is your Primary Impression (what are you treating?) \_\_\_\_\_

Findings supporting your choice of Impression:

Resp findings: \_\_\_\_\_

PMH: \_\_\_\_\_

Capnography: \_\_\_\_\_

37. What level of severity is this patient, according to the SOP? (SOP p 22) \_\_\_\_\_

38. What interventions are indicated for this patient? (SOP p 22)

Supplemental O2 method and flow: \_\_\_\_\_

Position: \_\_\_\_\_

Medications (two) \_\_\_\_\_

Read the scenario and associated info on slides 51-52 to answer qu 39 and 40

39. What is your primary impression?

☐ COPD exacerbation

☐ Heart failure

40. Support your answer:

Resp findings: \_\_\_\_\_

PMH: \_\_\_\_\_

Capnography: \_\_\_\_\_