Northwest Community EMS System 2019 SOP Self-Assessment
CARDIAC SOPs

Name (Print):	Date of submission
EMS Agency:	Date graded/feedback sent:
PEMSC signature:	Initial Score:_____ ☐ Acceptable ☐ Not acceptable ☐ Incomplete ☐ Incorrect answers
EMS Educator signature:	Resubmission:_____ ☐ Acceptable ☐ Not acceptable

Instructions: Complete; discuss with your Provider EMS Coordinator; obtain their signature; **SUBMIT** to the NWC EMSS Office at least 1 week prior to date of System Entry written testing for this module

This document is designed to measure a candidate's knowledge of practice standards in the NWC EMSS. Use the 2019 NWC EMSS SOPs, System Procedure Manual, and System Policy Manual (posted on System website) to answer these questions. We also recommend that you use the 2019 SOP Changes and Rationale and SOP Q&A V2 documents (System website: www.nwcemss.org posted under 5/19 CE) as additional references.

Acute coronary syndromes (ACS)

1. Which patient is most likely experiencing cardiac ischemia & should be treated per the ACS SOP?

   A. 25 y/o w/ PMH asthma c/o burning epigastric pain 8/10 after eating spicy food about 30 min ago.
   B. 75 y/o c/o Lt-sided pleuritic chest pain (6/10). Began with a fever and sore throat that progressed to a productive cough the last 2 days.
   C. 50 y/o w/ PMH of HTN & DM c/o fatigue and an aching feeling in shoulder (5/10) & dyspnea that began at rest 10 min ago. He appears pale & diaphoretic.
   D. 42 y/o c/o left-sided chest pain (7/10) that began after she fell and struck her chest one hour ago. Describes as "dull aching." Redness noted, tender to palpation.

2. How should oxygen be delivered to a patient with chest pain and mild dyspnea who presents with adequate ventilatory rate/depth, minimal distress and SpO_2 of 93%? (See IMC + ACS SOP)

   A. No oxygen is indicated
   B. NC at 1-6 L/min to achieve SpO_2 94%
   C. NRM at 12-15 L/min to achieve $SpO_2 \geq 98\%$
   D. CPAP at 5 cm PEEP to achieve $SpO_2 \geq 95\%$

3. A 65 y/o conscious adult is c/o diffuse chest pain (5/10) without radiation following a frontal impact MVC. There is a red diagonal line across his chest that appears to be developing seat-belt sign. VS: BP 140/90; HR 110 & regular; ECG: ST; R 16; SpO_2 96%, breath sounds clear and equal bilaterally; and heart sounds: distinct S1 & S2. PMH: HTN. Meds: losartan, hydrochlorothiazide. Which of these is indicated first?

   A. Chewable ASA
   B. Oxygen 2 L/NC
   C. Set up for a 12 L ECG
   D. Nitroglycerin 1 tab SL

4. At what point in the call should a 12-lead ECG be obtained when caring for a patient with possible ACS?

   _____

5. If a prehospital 12-lead ECG indicates an acute myocardial infarction (AMI), what is a priority action for a paramedic to take in the NWC EMSS?

   A. Hang a NTG drip
   B. Call a STEMI Alert to OLMC ASAP
   C. Wait 5 minutes and repeat the 12 L ECG
   D. Prep the patient for administration of fibrinolytics (tPA)

6. What is the action of aspirin (ASA) when given to a patient with ACS?

_____

_____

7. List two contraindications to giving chewable ASA to a patient with possible ACS.

_____

_____

8. The patient is a reliable historian and is not hypoxic. As paramedics are preparing to give him ASA, he shows them a bottle of flavored 81 mg chewable aspirin and states that he took 4 of these when his chest pain started. Which of these is indicated per SOP?

   A. Give the ASA anyway, just to make sure
   B. Do not give the ASA as an adequate dose has been verified

9. An adult with no PMH, no medication history and no known allergies presents with chest tightness (7/10) for the past 30 minutes and you suspect ACS. VS: 170/90; P 124, ECG ST; 12-lead reads "Acute MI suspected, Anterior-lateral"; R 24; SpO_2 98%; lungs are clear. Besides chewable ASA, which of these is indicated?

   A. NTG X 3
   B. Ketamine for pain
   C. Fentanyl for pain
   D. Midazolam for anxiety

10. Is NTG indicated for a patient with ACS who took Levitra (vardenafil) 36 hours ago?

   A. Yes
   B. No

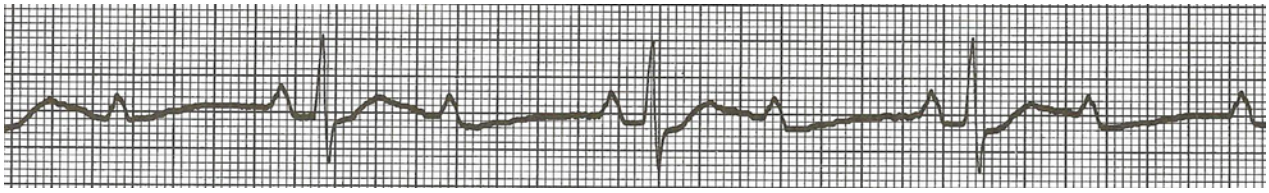
11. How often and what total dose of NTG may be given to an adult with ACS as long as there are no contraindications?

_____

12. What is the major cardiovascular side effect of NTG? _____

Bradycardia w/ a pulse

13. A 70 y/o male began to experience chest pain rated 10/10 while getting dressed. He is awake and answers questions appropriately. VS: BP: 96/60; P: 36; ECG: as below; R 18; SpO_2 93%; lungs: clear; glucose: 120. Skin is warm and dry. He denies allergies, meds or a past medical history. Weight: 190 lbs.

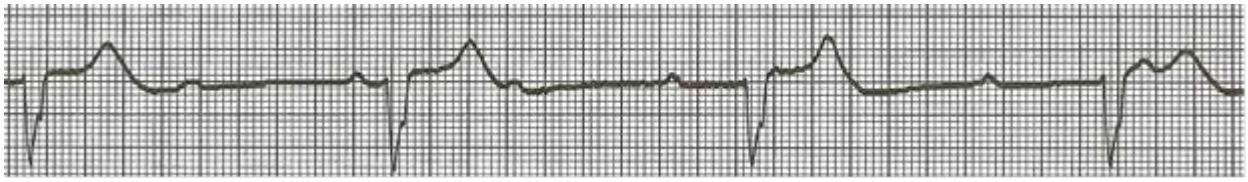


Is this patient a candidate for ASA?	[ ] Yes	[ ] No
Oxygen?	[ ] Yes	[ ] No
NTG?	[ ] Yes	[ ] No
Fentanyl or ketamine per pain SOP?	[ ] Yes	[ ] No

14. What intervention is indicated next for the above patient?

   A. Atropine 0.5 mg IVP
   B. Hang a norepinephrine drip
   C. Begin external transcutaneous pacing at 60 BPM
   D. Place TCP pads in anticipation of clinical deterioration; don't pace yet

15. A normothermic elderly adult presents with grossly altered mental status following a syncopal episode. The patient does not respond to commands. VS: BP 60/30; P 30 (weak at carotids), ECG: see below; 12 shows ST elevation in V1-V4; R 20, SpO_2 90%; lungs clear; glucose 110. Skin is pale, cold, and moist. Weight 190 lbs. The airway is patent and no IV is yet started. Which of these is indicated first?



A. Place TCP pads in anticipation of clinical deterioration
B. Begin external transcutaneous pacing at 60 BPM
C. Hang a norepinephrine drip
D. Atropine 0.5 mg rapid IVP

16. A 55 y/o experienced a syncopal episode at work. He is currently awake, lightheaded, weak, and denies chest pain. VS: BP: 86/44; P: 36; ECG below; 12 L shows no acute changes; R 18; SpO_2 95%; lungs: clear; glucose 110; Skin is warm and moist. Denies allergies, PMH or any meds.

Which of these is indicated first?

A. NTG
B. Pacing
C. Atropine
D. Norepinephrine

17. How should mechanical capture be confirmed when providing transcutaneous pacing?

_____

18. What is the maximum mA at which pacing should be attempted? _____

19. What intervention is indicated if a hypotensive patient with sinus bradycardia who takes beta blockers is unresponsive to atropine, norepinephrine, and/or pacing?

_____

20. If a conscious pt experiences anxiety and needs sedation during pacing, what intervention is indicated?

_____

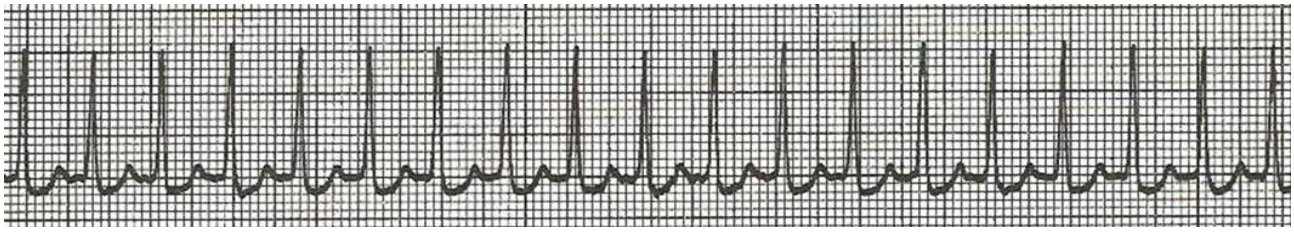
_____

Narrow QRS Complex Tachycardia

21. Which of these should be treated according to the narrow QRS complex tachycardia SOP?

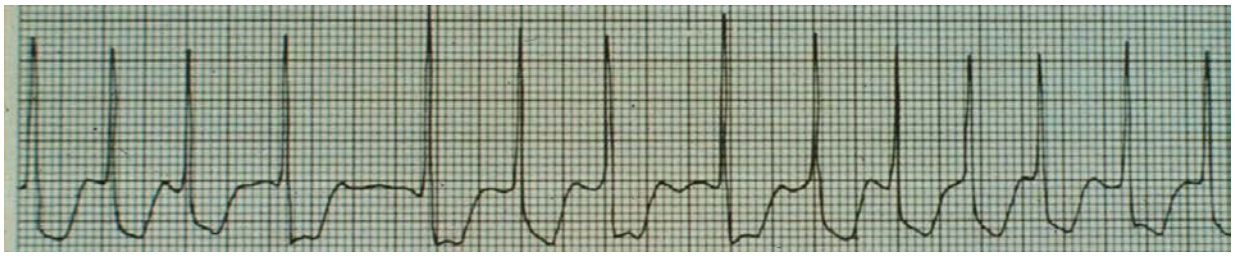
A. HR > 100 & left ventricular failure
B. HR > 150 due to atrial tachycardia and/or a-fib
C. HR > 150 in a patient who has overdosed on cocaine
D. HR > 120 in a trauma patient with possible intraperitoneal bleeding

22. A conscious and alert adult is c/o chest pressure and dyspnea. VS: BP 110/70; R 16; SpO_2 95%. ECG as below. After Vagal maneuvers are unsuccessful in slowing the HR, what intervention is indicated?



A. Synchronized cardioversion at 100 J
B. Verapamil 5 mg slow IVP over 2 minutes
C. Adenosine 6 mgt rapid IVP + 20 mL NS flush
D. On-going assessment, no medications, transport

23. A conscious and alert adult is complaining of light headedness, chest pain and palpitations. VS: BP 110/74; P 140; R 16; SpO_2 96%. ECG as below.

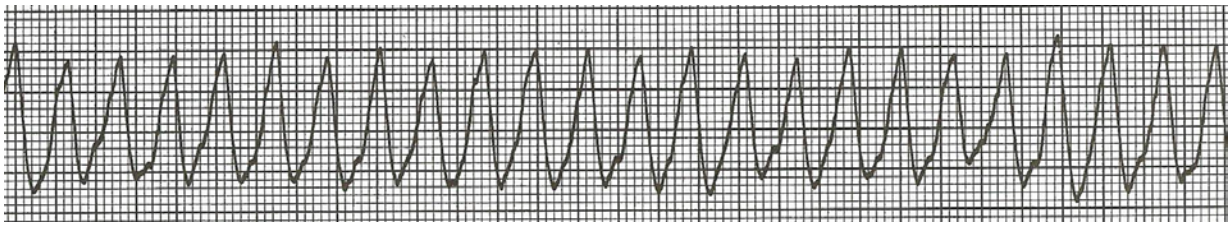


After Vagal maneuvers are unsuccessful in slowing the rhythm, what intervention is indicated?

A. Verapamil 5 mg slow IVP
B. Adenocard 6 mg rapid IVP
C. Magnesium 2 Gm slow IVP
D. Amiodarone 150 mg slow IVP

24. An adult presents with grossly altered mental status is slow to respond to questions. He has the following rhythm. A weak and rapid carotid pulse is palpable. Which intervention is indicated first if no IV is placed?

Ventricular tachycardia w/ a pulse



25. Which intervention is indicated for a conscious & alert adult with a radial pulse and BP 100/70 who presents in the above rhythm?

A. Lidocaine 1.5 mg/kg IVP
B. Synchronized cardioversion at 100 J
C. Magnesium 2 Gm in 16 mL NS slow IVP over 5-10 min
D. Amiodarone 150 mg mixed w/ 7 mL NS slow IVP over 10 min

26. What intervention is indicated immediately if the above pt develops altered mental status and drops their SBP <90?

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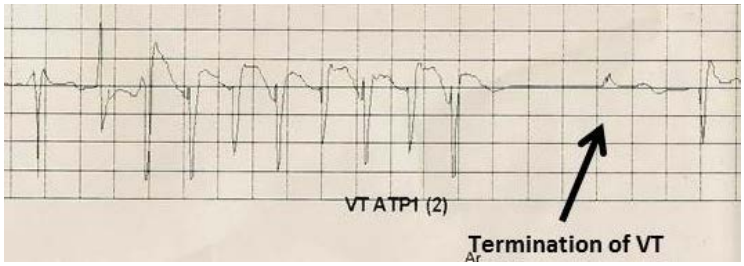
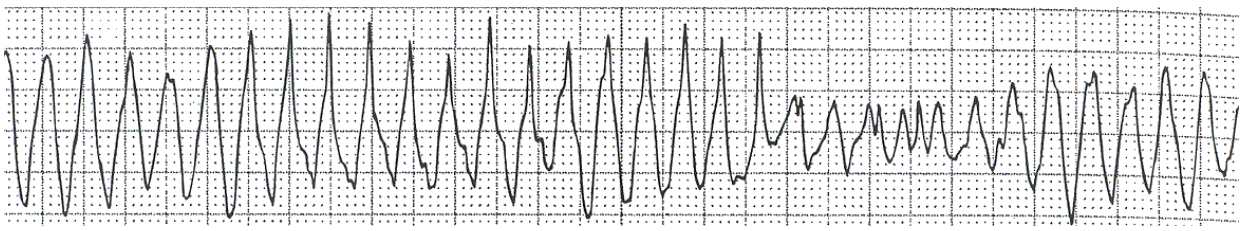
27. A conscious adult presents with chest pain and palpitations. After confirming V-tach, PMs start to give amiodarone slow IVP. Midway through the dose, they observe the following change to the ECG and VS are stable. Which of these is indicated?



A. Finish the amiodarone dose
B. Stop the amiodarone and transport

28. What intervention is indicated for a conscious adult with a radial pulse & BP 100/70 in the rhythm below?



A. Synchronized cardioversion at 100 J
B. Magnesium 2 Gm in 16 mL NS slow IVP over 5-10 min
C. Amiodarone 150 mg mixed w/ 7 mL NS slow IVP over 10 min
D. Defibrillation at 360 J or device-specific biphasic setting per VF SOP

29. What intervention is indicated if the above patient develops an AMS and drops their SBP <90?

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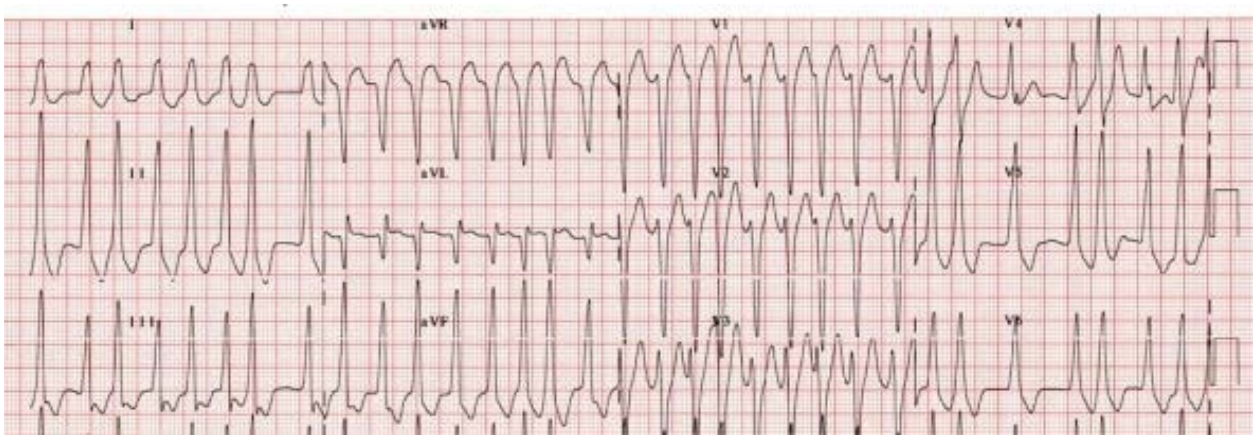
30. An adult is c/o a funny feeling in his chest. He has had similar episodes in the past and has been diagnosed with atrial fibrillation and Wolf Parkinson White (WPW) syndrome.



What treatment should the above patient receive?

Ventricular fibrillation/pulseless VT

31. How long should a patient in cardiac arrest be resuscitated on scene if there are no indications for early transport?

32. List 4 reasons a patient should not be resuscitated where found and/or should be transported to a hospital as soon as effective compressions are initiated?

33. What is the current recommendation with respect to pulse checks in unresponsive patients?

A. If not definitely felt in < 5 sec – defibrillate the patient
B. If not definitely felt in < 10 sec determine if CPR is contraindicated
C. Pulses cannot be felt during cardiac arrest – so the step was omitted
D. Accurate assessment was emphasized and the time expanded to check for 15 sec

34. A conscious, pulseless adult presents in VF with a Ventricular Assist Device. What EMS intervention is indicated first?

A. Disconnect the batteries and resuscitate as usual
B. Do NOT disconnect the batteries; call the LVAD coordinator on the pt's referral info sheet

35. An unconscious, pulseless adult presents in VF who is wearing a LifeVest. What EMS intervention in indicated first?

A. Disconnect the batteries and resuscitate as usual
B. Do NOT disconnect the batteries; allow the LifeVest to continue firing prior to starting EMS resuscitation

36. Which of these is indicated FIRST if an adult is assessed by EMS as unresponsive, apneic and pulseless after c/o chest pain to coworkers?

A. Do a quick look and check the rhythm
B. Begin manual CPR chest compressions
C. Give two quick breaths before starting compressions
D. Immediately apply an automated CPR device and begin chest compressions

37. How must the quality of CPR be measured until an automated CPR device can be deployed?

38. What are 7 contraindications to using an automated CPR device? (see Lucas Device Procedure)

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39. After initiating CPR on an adult that went into cardiac arrest within the last 6 minutes from non-hypoxic causes, how should EMS initially manage the airway and oxygen delivery? (See cardiac arrest procedure)

Airway opening maneuver: _____

Airway adjunct: _____

Oxygen delivery: _____

Ventilations: _____

What is added to maintain negative intrathoracic pressure during CPR? _____

40. What is the maximum length of time in seconds that chest compressions may be interrupted to place the back plate of a CPR device, check a rhythm, and/or defibrillate if manual compressions are in process?

A. < 5
B. 6 to10
C. 11 to 15
D. 16 to-20

41. What is the optimal chest compression rate per min for an adult when a ResQPod is used? (SOP p. 94)

A. 60
B. 80-100
C. 100-110
D. Approximately 120

42. What steps should be attempted (in order) if capnography readings remain <20 during CPR? (See cardiac arrest procedure)

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43. When should defib pads be placed on a pulseless patient in cardiac arrest?

A. Before CPR is initiated
B. During a brief pause in CPR
C. After the initial rhythm is found to be VF
D. While CPR is in progress, without interrupting chest compressions

44. EMS personnel witness an adult go into cardiac arrest with a shockable rhythm. Which of these is indicated? (See cardiac arrest procedure for clarity)

A. Precordial thump
B. Immediate defibrillation
C. Delayed defibrillation after 2 minutes of ApOx
D. Delayed defibrillation after 2 minutes of CPR

45. An adult is found in cardiac arrest with an unknown downtime (likely longer than 6 minutes). The patient has very fine VF and an $ETCO_2$ reading of 16. Which of these is indicated?

A. Immediate defibrillation
B. Delayed defibrillation: check quality of CPR and troubleshoot $ETCO_2$

46. At what joule setting should children <50 kg be defibrillated? (See SOP and Cardiac arrest procedure)

_____

47. Which of these is indicated immediately after defibrillating a patient in cardiac arrest with a shockable rhythm?

A. Check for a pulse
B. Assess the rhythm
C. Resume chest compressions
D. Give 2 quick breaths and then resume compressions

48. How long can CPR be interrupted to place an advanced airway?

A. Not at all
B. < 5 seconds
C. 6 to10 second
D. 15 to 30 seconds

49. How long must oxygen be applied at a minimum before even considering advanced airway placement? (See cardiac arrest procedure)

_____

50. Which of these is indicated after placing an advanced airway during cardiac arrest resuscitation?

A. Change the compression/ventilation ratio to 5:1
B. Increase the ventilatory rate to 12-16 breaths/minute
C. Pause compressions to suction the i-gel or ETT as needed
D. Perform continuous compressions without pausing for ventilations

51. How frequently should epinephrine be given to a patient in cardiac arrest NOT caused by anaphylaxis?

A. Every 2 minutes when the rhythm is checked
B. Every 3 - 5 minutes
C. Every 6 minutes
D. Every 10 -15 minutes

52. Which of these is the preferred dose & route of epinephrine for an adult in pulseless arrest?

A. 1mg/1mL 1 mg IVP/IO
B. 1mg/1mL 0.5 mg increments IVP/IO
C. 1mg/10mL 1 mg IVP/IO
D. 1mg/10mL 0.1 mg increments IVP/IO

53. Which of these is the initial dose for amiodarone when given to an adult in V-fib?

A. 50 mg fast IVP/IO
B. 1.5 mg/kg slow IVP/IO
C. 300 mg rapid IVP/IO (undiluted)
D. 150 mg slow IVP/IO mixed with 7 mL NS over 10 minutes

54. What is the repeat dose of amiodarone for adults who remain in a shockable rhythm and how long after the 1st dose should it be given?

_____

55. How often should patients in refractory/persistent VF be defibrillated provided $ETCO_2$ remains > 20?

_____

56. If a patient has persistent VF, what intervention is indicated?

_____

57. If patients with refractory VF have had high quality CPR, several attempts at defib, and appropriate meds have been given, what intervention should be considered if 2 monitors are available?

_____

58. What may be the first clue of return of spontaneous circulation (ROSC)?

A. Pulses and BP return
B. The patient opens their eyes
C. Patient bites the ET tube or i-gel airway
D. Abrupt and sustained rise in capnography reading w/ normal waveform

59. An adult found in VF has been successfully resuscitated to a sinus rhythm with return of spontaneous circulation. The patient remains unconscious, is breathing spontaneously, BP 70/40; P 76; R 12; SpO2 93%. EtCO2 has a square waveform and digital reading of 62 mmHg. While providing a fluid challenge, which of these is indicated FIRST?

A. Norepinephrine IVPB
B. 30 seconds of hyperventilation to wash out respiratory acids
C. Rapid external warming with activated hot packs and blankets
D. Secure the ResQPod in place to ensure continued operation enroute to the hospital

60. Why is it important to obtain a 12 L ECG ASAP after ROSC?

A. To get the best possible rhythm analysis
B. To look for evidence of benign early repolarization
C. To see if the heart was damaged during the resuscitation
D. To determine the need for an urgent cardiac catheterization (STEMI)

61. An unconscious adult male is found in VF. The patient's wife states that he had an ICD implanted six months ago. Which EMS intervention is appropriate for this patient?

A. Deactivate the unit with a round magnet and begin CPR
B. Defibrillate and process through the VF SOP as usual
C. Listen over the battery pack with a stethoscope to see if the unit is still charging
D. Wear insulating gloves when performing chest compressions to reduce current exposure

62. An adult presents with IVR & PEA. CPR has been in progress for 12 min, the pt has been given epi 1 mg IVP X 2, an i-gel is placed and $EtCO_2$ is 35 mmHg. An empty bottle of amitriptyline is next to the pt. Which of these is indicated based on a considerations of the Hs and Ts?

A. Atropine
B. Glucagon
C. Sodium bicarbonate
D. Terminate resuscitation; further attempts are futile

Heart Failure (HF)/Pulmonary Edema/Cardiogenic Shock

63. Which of these is indicated first if an adult in pulmonary edema presents with severe respiratory distress and altered mental status?

A. O_2 10-15 L/NRM
B. DAI and O_2 15 L/BVM
C. O_2 15 L (FiO_2 60%)/C-PAP mask w/ 5 cm PEEP
D. O_2 flush (FiO_2 95%)/C-PAP mask w/ 10 cm PEEP

64. An adult presents with dyspnea that has gradually gotten worse over the past 3 days. The patient denies chest pain, cough, fever, or recent illness. PMH: Hypertension (HTN) and high cholesterol. They are supposed to be taking Hydralazine and Vytorin, but have not been taking them recently. VS: BP 186/100, P 90; ECG SR w/ no evidence of AMI; R 24, SpO_2 92%; capnography 32 with square waveform; lungs have wheezing bilaterally. Which of these is indicated for this patient?

A. C-PAP & NTG
B. Epinephrine 0.3 mg IM
C. O_2 15 L/NRM and transport
D. Albuterol & ipratropium/HHN

65. An adult is being treated for pulmonary edema with C-PAP at 7 cm of PEEP. They are very anxious and not tolerating the mask well. VS: BP 190/94, P 122, R 28, SpO_2 90%. Lungs have bilateral crackles in both bases. What action is indicated *first*?

A. Increase PEEP to 10 cm and FiO_2 to 95%
B. Perform DAI and assist ventilations with a BVM
C. Stop C-PAP and switch to a nonrebreather mask
D. Have a paramedic coach the pt, consider giving midazolam in 2 mg increments

66. An adult had an onset of chest pain (rated 10/10) 30 minutes ago while watching TV. Wt: 200 lbs. PMH: HTN; Meds: Cozaar; denies any allergies. Skin: cold and diaphoretic with dusky lips and nailbeds and no ankle edema; lungs have crackles bilaterally. VS: BP 70/50; P 86; R 28; ECG: SR; SpO_2 70%; capnography 30 with square waveform. After IMC, which intervention is indicated?

A. C-PAP w/ 10 cm PEEP
B. Nitroglycerin 0.4 mg SL
C. Fluid challenges in 200 mL increments
D. Norepinephrine drip, starting 8 mcg/min