# Case 1
# Scenario Location: Out-of-Hospital
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 3

**Lead-in:** You are a paramedic and you respond to a restaurant for a woman having an asthma attack.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. The woman is lying on the floor, unconscious with agonal respirations. What are your initial actions? |
| **Additional Information** | Her friends tell you that she began complaining of difficulty breathing while eating dinner, and within minutes she was gasping for air and had a decrease in her mental status.<br>Her pulse is 120/min, weak and regular, her blood pressure is 60/38 mm Hg, and her room air $SpO_2$ is less than 50%. There is only moderate chest rise and no improvement with bag-mask ventilation. What are your next actions?<br>**One of her friends tells you that the patient is allergic to peanuts.** |
| **Additional Information (if needed)** | You have given epinephrine 0.3 mg (1:1000) IM, started an IV line, and pushed 50 mg of diphenhydramine. You also administer albuterol 2.5 mg via the bag-mask device; however, the patient's condition is not improving. What are your next actions?<br>**(The decision point for the paramedic is whether to attempt an oral endotracheal intubation at the possible expense of worsening the swelling of the airway or performing a needle cricothyrotomy. Regardless of choice, oxygen administration should be initiated if not already done.)** |



## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 2
# Scenario Location: Out-of-Hospital
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 1

**Lead-in:** You are in the lounge, and your partner enters, holding her throat with both hands.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. Your patient is unable to speak or cough. What are your actions? |
| **Additional Information** | You perform abdominal thrusts several times without dislodging the obstruction, and your patient becomes unresponsive. What are your actions? |
| **Additional Information (if needed)** | You activate the emergency response system, lower the patient to the ground, and begin CPR. Every time you open the airway to give breaths, you open the patient's mouth, look for the object, and attempt to remove it.<br>Assistance arrives and the patient is placed on a cardiac monitor; pulse oximeter and airway equipment is available as you retrieve a food bolus from your patient's mouth. You are now able to ventilate; however, the patient is unresponsive and not breathing. Her vital signs include a pulse rate of 64/min, blood pressure of 110/70 mm Hg, and $SpO_2$ of 62%. What are your next actions? |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

**Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: **PASS** **NR**

Instructor Initials _____

Instructor Number _____ Date _____

## Case 3
## Scenario Location: Out-of-Hospital
## Scenario Topic: Respiratory Arrest

### Scenario Rating: 2

**Lead-in:** You are a paramedic and respond to a breathing difficulty call. The scene is safe.

### Case Development

| | |
|---|---|
| **Initial Information** | The patient is lying in bed, unresponsive and with severe difficulty of breathing. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check shows sinus tachycardia (show ECG strip). What are your actions? |
| **Additional Information (if needed)** | If the paramedic begins assisting ventilation quickly, the heart rate remains the same. If not, bradycardia develops and quickly progresses to asystole.<br>The patient's wife says her husband did not feel well the day before and had a very restless night. What are your next actions? |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| ***Critical Performance Steps*** | **✓ if done correctly** |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 4
# Scenario Location: Out-of-Hospital
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 2

**Lead-in:** You are a paramedic responding to a shortness of breath call for an obese 32-year-old man with a severe asthma attack.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. You arrive on scene and find the patient sitting in a chair on the porch in the tripod position. He is in severe respiratory distress, cyanotic, and diaphoretic. The patient's wife states that he has been using his asthma inhaler "all day" and became worse over the past 20 minutes. What are your initial actions? |
| **Additional Information** | Your assessment reveals silent breath sounds with minimal air movement. He is tachycardic, and his vital signs are pulse 120/min, respiratory rate 28/min, blood pressure 184/100 mm Hg, and $SpO_2$ 85% on room air. What are your actions? |
| **Additional Information (if needed)** | You are able to obtain IV access, but he becomes increasingly agitated and restless and removes his nonrebreathing mask and nebulizer. His $SpO_2$ decreases immediately after this. |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| ***Critical Performance Steps*** | **✓ if done correctly** |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 5
# Scenario Location: Emergency Department
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 3

**Lead-in:** You are an emergency department care provider. You are asked by the charge nurse to see a patient who has been brought in by EMTs to your resuscitation bay. 9-1-1 was called by a storekeeper after he found an unconscious man in his 30s in an alley behind a row of stores. On arrival, paramedics found him unconscious and not breathing. They also noted drug paraphernalia on scene, including an empty syringe.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient appears disheveled, unconscious, and mildly cyanotic about the lips. EMTs have performed the BLS Assessment and are attempting to ventilate the patient with a bag-mask device. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. There is a strong pulse but no spontaneous respirations. A rhythm check finds a narrow-complex rapid tachycardia (show ECG strip). His vital signs are heart rate 120/min, respiratory rate 0/min, blood pressure 100/55 mm Hg, $SpO_2$ 75%, and temperature 36.7°C. Numerous track marks are noted on the patient's arms. The patient has a Glasgow Coma Scale score of 3, and his pupils are dilated bilaterally at 7 mm. What are your actions? |
| **Additional Information (if needed)** | EMTs were having some difficulty achieving adequate ventilations with the bag-mask device. What are some actions that can be taken to improve bag-mask ventilations (eg, positioning airway, ensuring a good seal, 2-rescuer technique, oral and/or nasopharyngeal airways)?<br>With the addition of some of these techniques, ventilation improves and oxygen saturation improves with 100% oxygen by bag-mask device. The patient remains unconscious and apneic, with a heart rate of 100/min normal sinus rhythm and an unchanged blood pressure. What are your next actions?<br>(Options: Trial of naloxone starting with small, escalating doses) |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| ***Critical Performance Steps*** | **✓ if done correctly** |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 6
# Scenario Location: Emergency Department
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 2

**Lead-in:** You are a nurse practitioner practicing in a double-coverage emergency department (a physician is the other provider) when a patient arrives via EMS with a chief complaint of shortness of breath. Paramedics report a prior history of heart failure and medical noncompliance. The patient arrives on continuous positive airway pressure (CPAP).

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is transferred onto an emergency department stretcher. The patient looks tired and cannot speak in complete sentences. What are your new actions? |
| **Additional Information** | The patient is placed on a monitor. His initial vital signs are pulse 145/min, blood pressure 210/115 mm Hg, and $SpO_2$ 82% on 100% oxygen. The patient is transitioned to bilevel positive airway pressure. After 10 minutes, the patient slumps over and becomes apneic. What are your actions now? |
| **Additional Information (if needed)** | A definitive airway should be obtained.<br>Treatment for heart failure should be initiated after the patient is placed on bilevel positive airway pressure. ECG, chest x-ray, and laboratory analysis should help confirm the diagnosis.<br>Some centers may choose to keep the patient on CPAP.<br>The family arrives and states that the patient has been noncompliant with his medications and has progressively become short of breath with swollen lower extremities. This has happened a few times in the past, often requiring hospitalization. |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

**Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: **PASS** **NR**

Instructor Initials _____

Instructor Number _____ Date _____

# Case 7
# Scenario Location: In-Hospital—Medical-Surgical Unit
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 1

**Lead-in:** You are a healthcare provider assigned to care for a patient who has just returned from a surgical procedure.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is a 32-year-old woman who is returning for recovery from surgery, postatypical appendectomy. The postanesthesia care unit was experiencing overflow, so the patient was returned to the surgical unit for postsurgical care. Before surgery, the patient was a healthy, active mother of three.<br>The patient's husband runs out to the nurses' station, screaming that his wife is not breathing.<br>When entering the patient's room, you note that the scene is safe, but she is unresponsive. What are your initial actions?<br>You perform the BLS Assessment and discover that she is unconscious and is not making any respiratory effort. What are your actions? |
| **Additional Information** | Upon initial assessment, the Team Leader discovers that the patient is making no effort to breathe but has a strong radial pulse. Simultaneous ventilation with 100% oxygen is given via bag-mask device and OPA, and a rhythm check of the cardiac monitor/defibrillator shows a narrow-complex tachycardia. The vital signs are palpated heart rate of 112/min, assisted ventilation rate of 10 to 12/min, and blood pressure of 122/64 mm Hg. |
| **Additional Information (if needed)** | The patient came to the emergency department for severe abdominal pain in all 4 quadrants. She has extreme light and movement sensitivity. Upon arrival to the emergency department, she was unable to ambulate with assistance. She was symptom free on the previous day.<br>With the aid of diagnostics, the patient was rushed to surgery for an emergency appendectomy. The patient's weight was estimated due to the emergent nature of the procedure. Her husband notes that she has no health problems that he knows of and has never had surgery.<br>What additional information would you like to know?<br>What additional actions would you perform? |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| ***Critical Performance Steps*** | **✓ if done correctly** |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

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| **Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 8
# Scenario Location: In-Hospital
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 2

**Lead-in:** You are the medical resident on call in a large urban teaching hospital. The nurse calls you about a patient who has lip swelling and itching while receiving an IV medication.

## Case Development

| | |
|---|---|
| **Initial Information** | When you arrive to the bedside, you see a 73-year-old woman with swollen lips and tongue and noticeable stridor. She appears anxious. What are your initial actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. You discover that the patient has new IV antibiotic infusing for lower extremity cellulitis. Her initial vital signs are pulse 130/min, respiratory rate 35/min, blood pressure 170/82 mm Hg, and oxygen saturation 87%. Hives are apparent on the neck and upper chest. What are your actions? |
| **Additional Information (if needed)** | You initial impression is anaphylaxis. You give the patient IM epinephrine, IV H2/H1 blockers, and steroids. The condition is unchanged, and actually the tongue is now more swollen. The stridor is worsening. The patient's husband says she is allergic to penicillin, and a third-generation cephalosporin is infusing. What are your next actions?<br><br>A rapid sequence intubation definitive airway is obtained (consider a double setup, in case an emergency cricothyrotomy is needed). The patient is transferred to the ICU. |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

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- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

**Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: **PASS** **NR**

Instructor Initials _____

Instructor Number _____ Date _____

# Case 9
# Scenario Location: In-Hospital
# Scenario Topic: Respiratory Arrest

## Scenario Rating: 2

**Lead-in:** A 70-year-old woman, postoperative day 1 from a cholecystectomy, is found to be unresponsive with poor respirations. A Code Blue is called.

## Case Development

| | |
|---|---|
| **Initial Information** | A 70-year-old woman is on postoperative day 1 from an open cholecystectomy for acute cholecystitis. A patient care technician finds her to be unresponsive with poor respirations and calls for help. You walk in the room to assist. What are your initial actions? |
| **Additional Information** | You find the patient to be apneic, but she has a strong carotid pulse. You initiate bag-mask ventilation. What are your actions?<br>The student should recognize respiratory arrest without cardiac arrest. Bag-mask ventilation should be initiated, ideally with supplementary use of an NPA or OPA. The instructor can use this to test appropriate techniques and both 1- and 2-person bag-mask ventilation. The patient is completely unresponsive and will tolerate either but over time with ventilation will become more responsive and will not be able to tolerate the oral airway. |
| **Additional Information (if needed)** | Bag-mask ventilations with airway adjuncts are continued. On further questioning, you learn that the patient is receiving morphine continuously through a pump for postoperative pain management. With the provision of naloxone, the patient becomes responsive, and the airway is maintained.<br>The origin of the respiratory failure is overdose of morphine. This should be recognized during the event and naloxone provided. The dose of naloxone should be discussed. The scenario will end when naloxone is administered. |

## Airway Management Skills Testing Checklist

Student Name _____ Date of Test _____

| ***Critical Performance Steps*** | **✓ if done correctly** |
|---|---|
| **BLS Assessment and Interventions** | |
| Checks for responsiveness<br>• Taps and shouts, "Are you OK?" | |
| Activates the emergency response system<br>• Shouts for nearby help/Activates the emergency response system and gets the AED<br>*or*<br>• Directs second rescuer to activate the emergency response system and get the AED | |
| Checks breathing<br>• Scans chest for movement (5-10 seconds) | |
| Checks pulse (5-10 seconds)<br>**Breathing and pulse check can be done simultaneously**<br>Notes that pulse is present and does not initiate chest compressions or attach AED | |
| Inserts oropharyngeal or nasopharyngeal airway | |
| Administers oxygen | |
| Performs effective bag-mask ventilation for 1 minute<br>• Gives proper ventilation rate (once every 5-6 seconds)<br>• Gives proper ventilation speed (over 1 second)<br>• Gives proper ventilation volume (~half a bag) | |

**STOP TEST**

**Instructor Notes**

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- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# Case 10
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

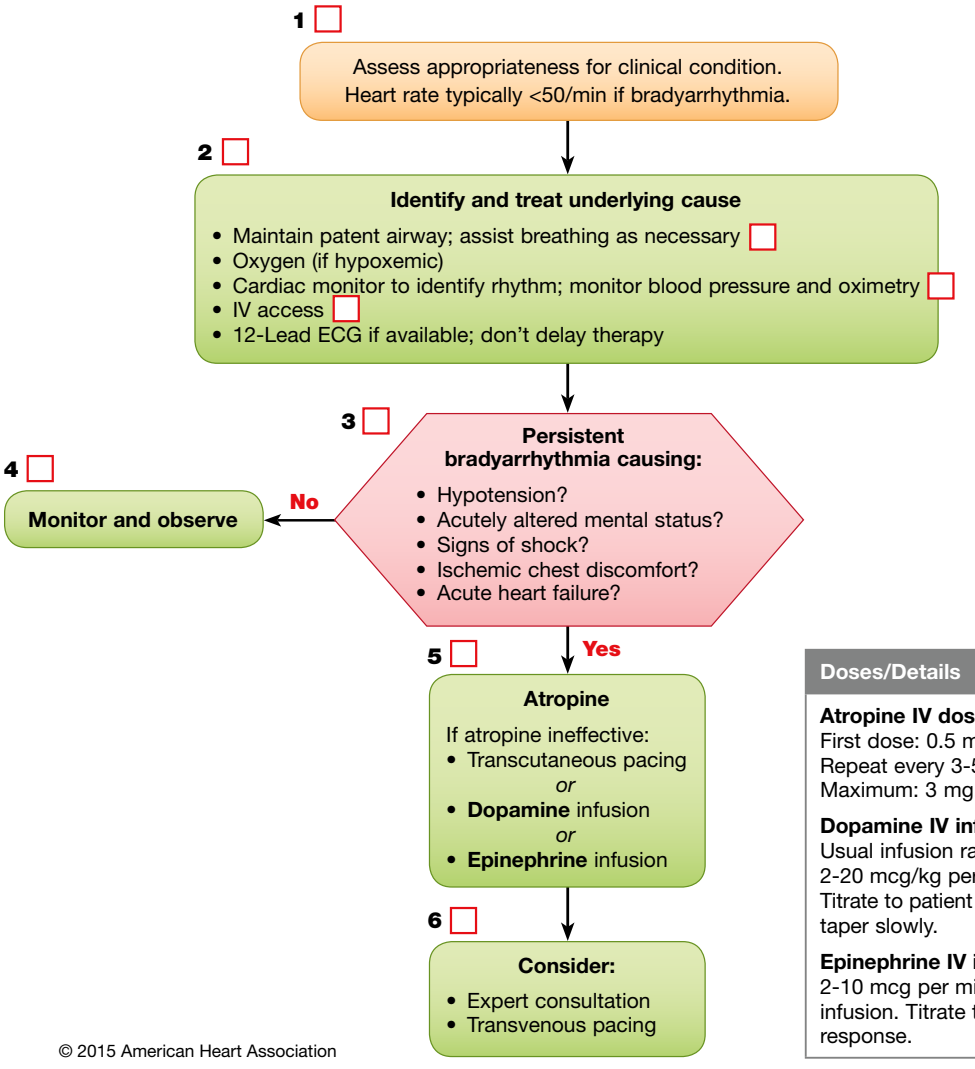
**Lead-in:** You are a paramedic and respond to an altered mental status patient call. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Information** | You find a man (age 59) sitting upright on a couch. He is disoriented, pale, and diaphoretic. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check finds a **third-degree heart block** (show ECG strip). What are your actions? |
| **Additional Information (if needed)** | If the paramedic correctly initiates the transcutaneous pacing procedure, the patient's condition improves. If not, the patient quickly deteriorates to pulseless.<br>The patient's wife says the condition came on quickly, and the patient had chest pain just before he became unresponsive. What are your next actions? |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

**Atropine IV dose:**
First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.

**Dopamine IV infusion:**
Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.

**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or transcutaneous pacing<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 11
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

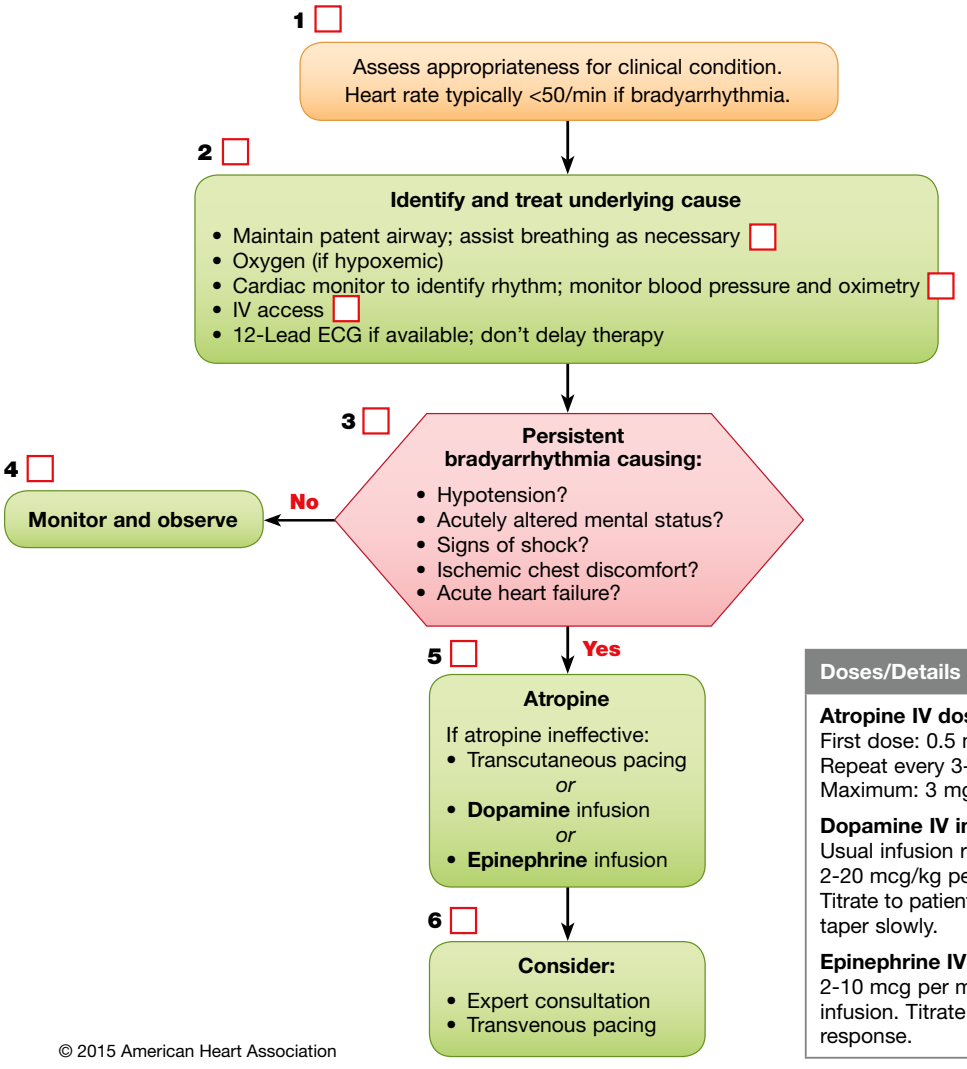
**Lead-in:** You are called to the scene for a man who says he has weakness and light-headedness.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. You find your patient sitting in a chair, ashen and diaphoretic, reporting indigestion and weakness. What are your actions? |
| **Additional Information** | You assess your patient while your partner obtains vital signs and attaches a cardiac monitor and pulse oximeter. The patient's vital signs are heart rate 48/min and irregular, respiratory rate 20/min, blood pressure 78/40 mm Hg, and $SpO_2$ 96%. Now, what would you do? The rhythm is **second-degree type II AV block**. |
| **Additional Information (if needed)** | Atropine is unsuccessful, and the transcutaneous pacemaker fails to capture. What are your next actions? |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

**Atropine IV dose:**
First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.

**Dopamine IV infusion:**
Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.

**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
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# Case 12
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 1

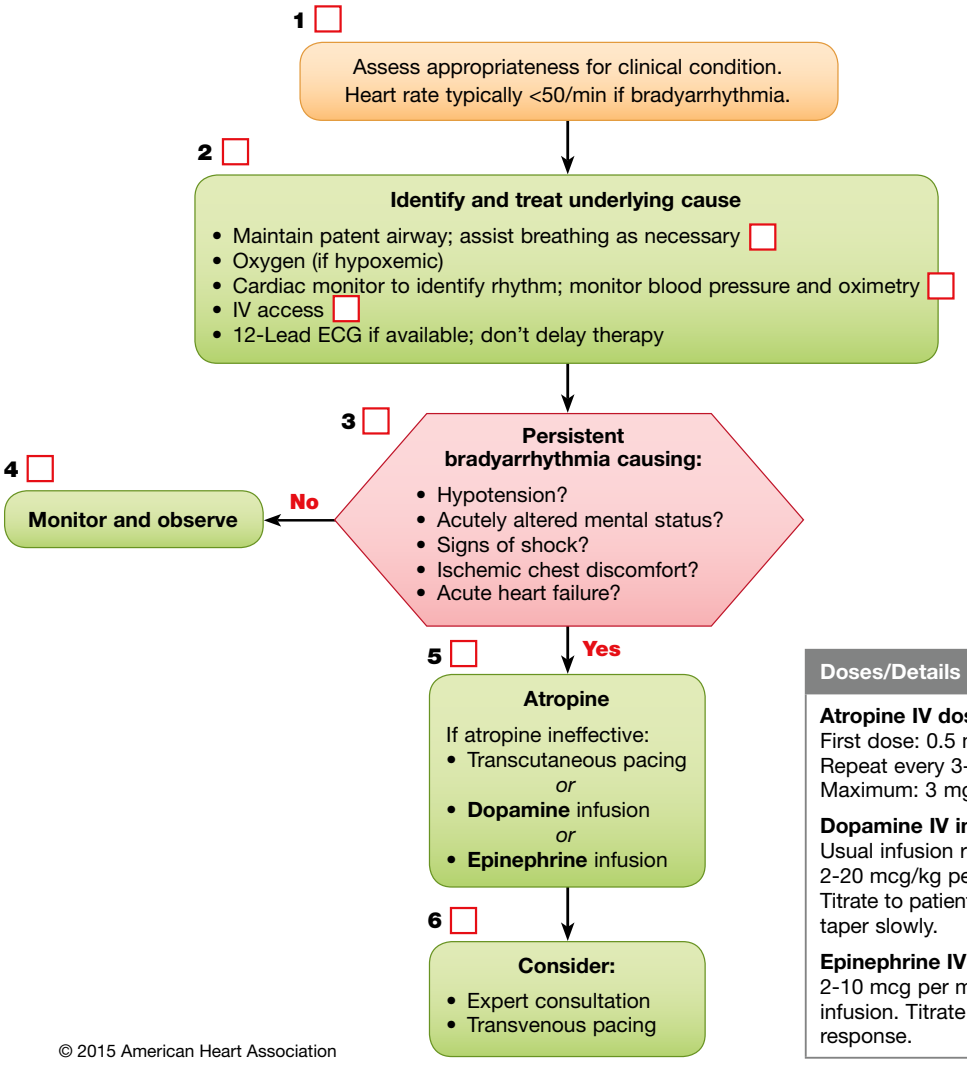
**Lead-in:** You are a paramedic and respond to a home for a patient who has reportedly had a syncopal episode.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. The patient is lying on the floor with an altered level of consciousness. She is breathing and appears extremely pale. What are your initial actions? |
| **Additional Information** | Her husband tells you that she has a history of high blood pressure and that she began feeling light-headed after taking her medication.<br>Her pulse is 40/min and weak and regular, blood pressure is 54/36 mm Hg, and room air $SpO_2$ is 70%. Cardiac monitor shows **sinus bradycardia**. What are your next actions?<br>(The patient just changed medication from lisinopril to atenolol. She had never taken atenolol before.) |
| **Additional Information (if needed)** | You have started an IV and pushed a bolus of normal saline, but there is no significant improvement in perfusion. What are your next actions? |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

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**Dopamine IV infusion:**
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**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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# Case 13
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

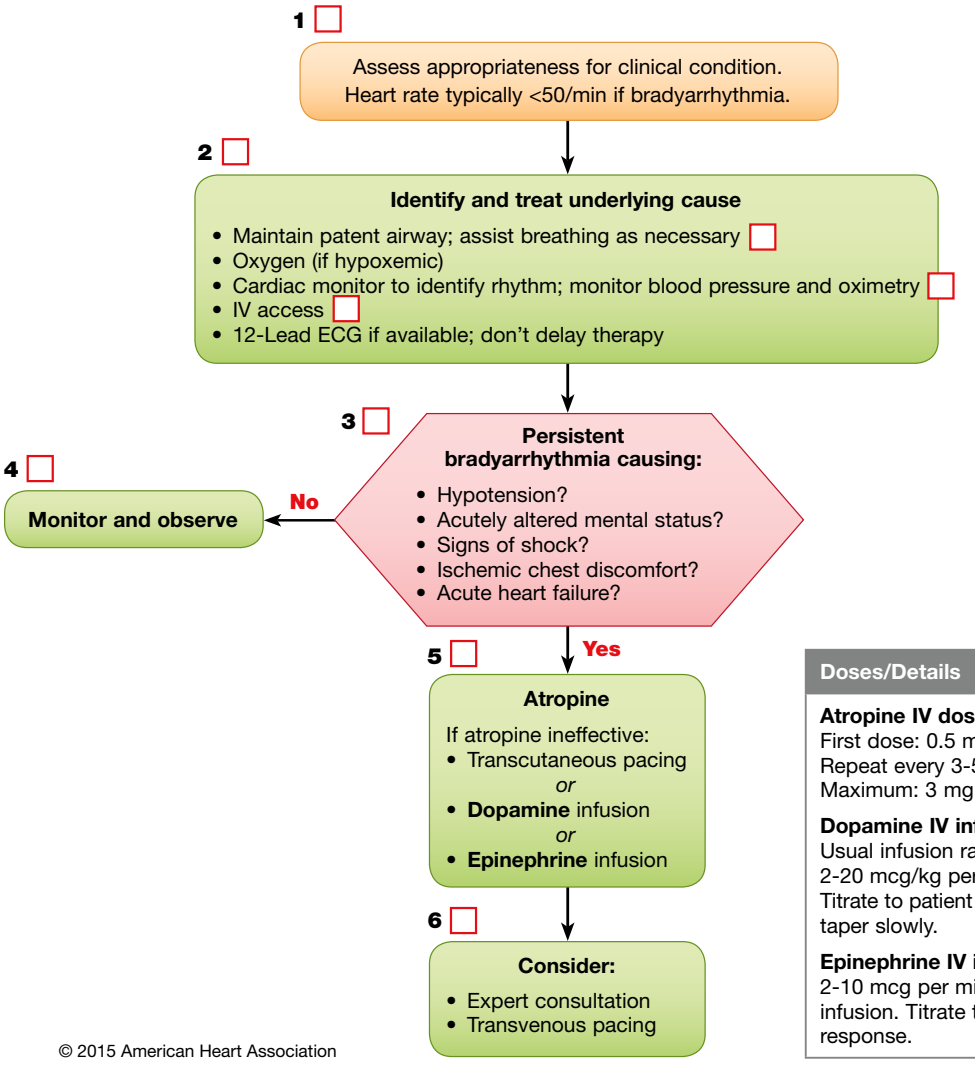
**Lead-in:** You are the paramedic who is dispatched to a 76-year-old woman who reports epigastric abdominal pain and vomiting.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. Upon arrival, you find a thin, elderly woman who is diaphoretic, pale, and in obvious discomfort, holding her epigastrium. She states that she feels very weak. She denies any chest pain but does feel short of breath. What are your initial actions? |
| **Additional Information** | You place her on oxygen, and her vital signs are heart rate 46/min, respiratory rate 18/min, blood pressure 76/30 mm Hg, and $SpO_2$ 98% on 4 L via nasal cannula. What do you do, and what are your priorities?<br>A 12-lead ECG shows an acute inferior wall STEMI with a **wide-complex third-degree AV block**.<br>The student should recognize the STEMI and contact the receiving hospital so that a cardiac STEMI alert can be activated. |
| **Additional Information (if needed)** | The student should verbalize to try either dopamine 2 to 20 mcg/kg per minute, titrating to patient's response, or transcutaneous pacing.<br>If atropine is considered, discuss the precautions of using it in the presence of myocardial ischemia; in addition, atropine may not likely be effective given the cardiac rhythm.<br>It is appropriate for the paramedic to also administer aspirin and an analgesic to this patient.<br>The patient should be transported to the emergency department with anticipation of rapidly going to the cath lab. |

# Bradycardia Learning Station Checklist

## Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

**Atropine IV dose:**
First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.

**Dopamine IV infusion:**
Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.

**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

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| Action | Gather | Analyze | Summarize |
|---|---|---|---|
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# Case 14
# Scenario Location: Emergency Department
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

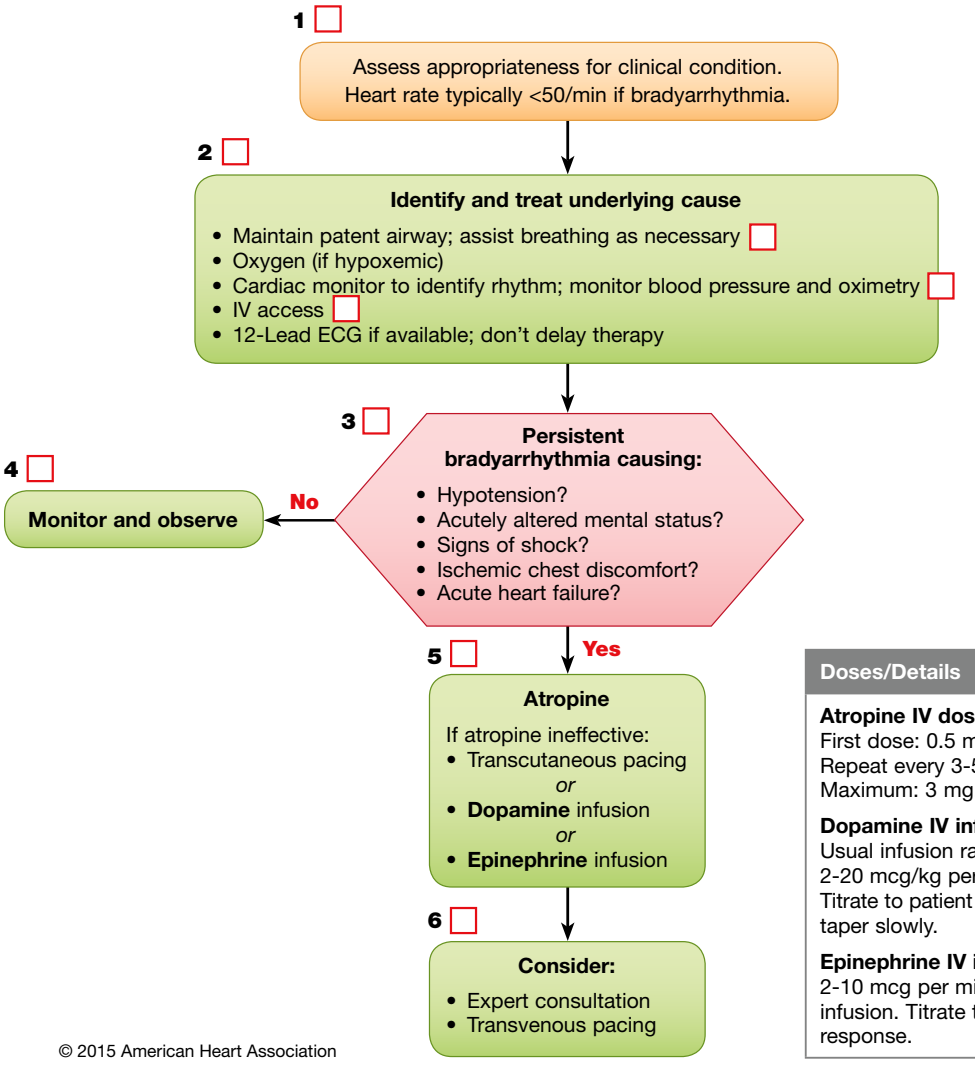
**Lead-in:** You are working in a community emergency department. It is quite busy and the waiting room is full. A patient is placed in a room, with a chief complaint of weakness. She tells the triage nurse that she had difficulty getting o f the toilet due to generalized weakness.

## Case Development

| | |
|---|---|
| **Initial Information** | When you walk into the room, you note a 74-year-old woman in no distress though she looks tired and pale. The patient is not on the monitor. What are your actions? |
| **Additional Information** | Her initial vital signs are pulse rate of 32/min, blood pressure of 72/45 mm Hg, and $SpO_2$ of 92% on room air. She is afebrile. The patient is placed on a monitor. The patient is on some "hypertension medication," which she takes every day. The ECG reads **second-degree type I AV block**. What are your actions now?<br><br>The patient is given IV atropine without response and then IV dopamine (epinephrine may also be used), IV calcium, and glucagon for presumptive β-blocker overdose. |
| **Additional Information (if needed)** | The family arrives and notes that the patient has been complaining of nausea and vague heartburn and has been more tired recently. She sometimes becomes confused and takes too many of her medications. |

# Bradycardia Learning Station Checklist

## Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

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**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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# Case 15
# Scenario Location: Emergency Department
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

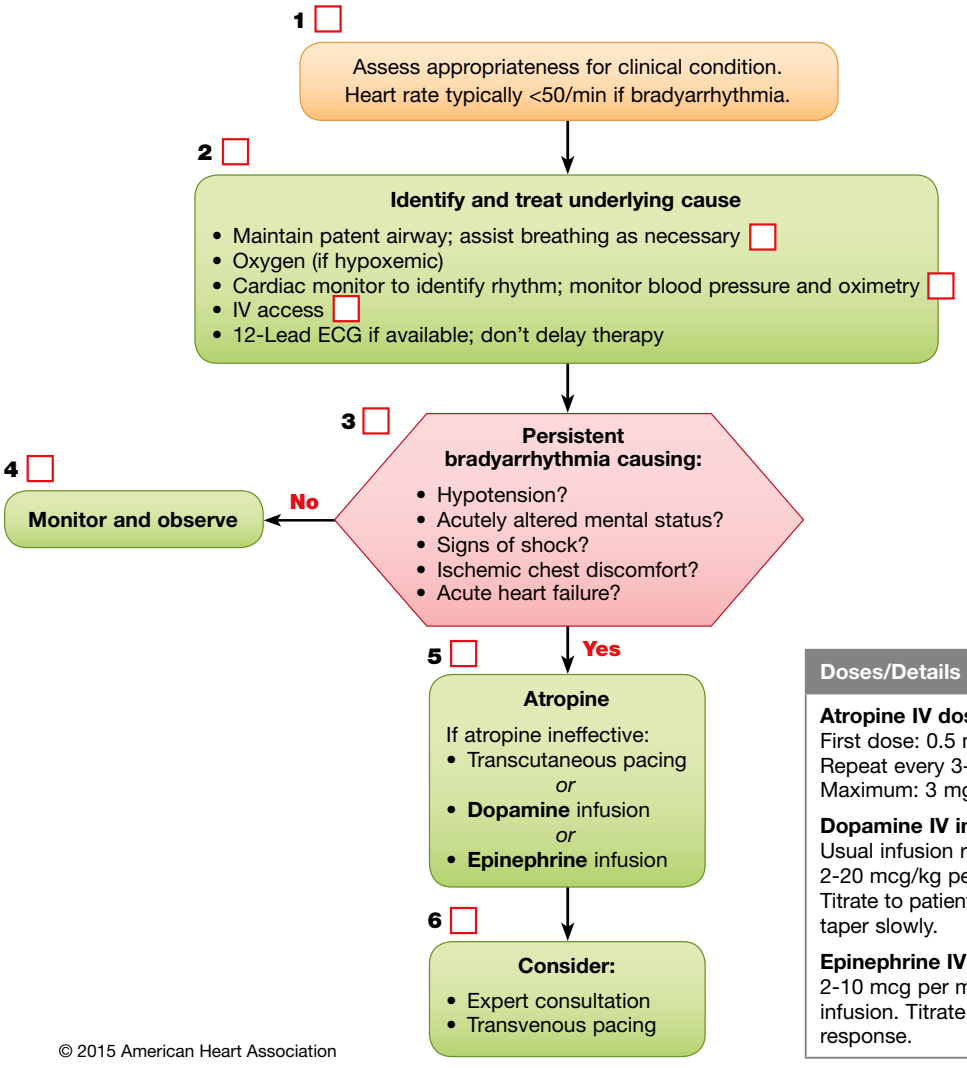
**Lead-in:** You are an emergency department provider in a medium-sized community hospital. You are assessing a 79-year-old woman with a history of peripheral vascular disease. She presents to the emergency department with a sensation of presyncope.

## Case Development

| | |
|---|---|
| **Initial Information** | She feels dizzy, light-headed, weak, and faint. This started about 2 hours ago while she was watching the evening news. There has been no chest pain or dyspnea. She has not experienced palpitations. Recently, she has been healthy with no fever, vomiting, diarrhea, or dysuria. There have been no recent changes to her medications. What are you actions?<br><br>When the patient is brought to the acute care area of the emergency department, she is found to be hypotensive and bradycardic. Her vital signs are heart rate 50/min, respiratory rate 20/min, blood pressure 75/45 mm Hg, temperature 36.5°C, and $SpO_2$ saturation 98% on room air.<br><br>An ECG shows a **second-degree type II AV block.**<br><br>What are your immediate actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check finds a narrow-complex bradycardia (second-degree type II AV block). The patient appears pale and drowsy. What are your actions?<br><br>The patient has a history of peripheral vascular disease. She was having claudication symptoms last year and underwent left femoral-popliteal bypass surgery. She has been asymptomatic since the procedure. The patient is also hypertensive and on maintenance medications.<br><br>Her medications are aspirin 81 mg by mouth once daily, ramipril 10 mg by mouth once daily, and hydrochlorothiazide 25 mg by mouth twice daily. She has no allergies, and she has normal electrolytes, negative cardiac biomarkers, and a normal chest x-ray. |
| **Additional Information (if needed)** | Attempts to use atropine to increase the heart rate are unsuccessful. The patient deteriorates into a third-degree AV block and requires transcutaneous pacing. |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

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# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

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# Case 16
# Scenario Location: In-Hospital—Cardiac Telemetry Unit
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 1

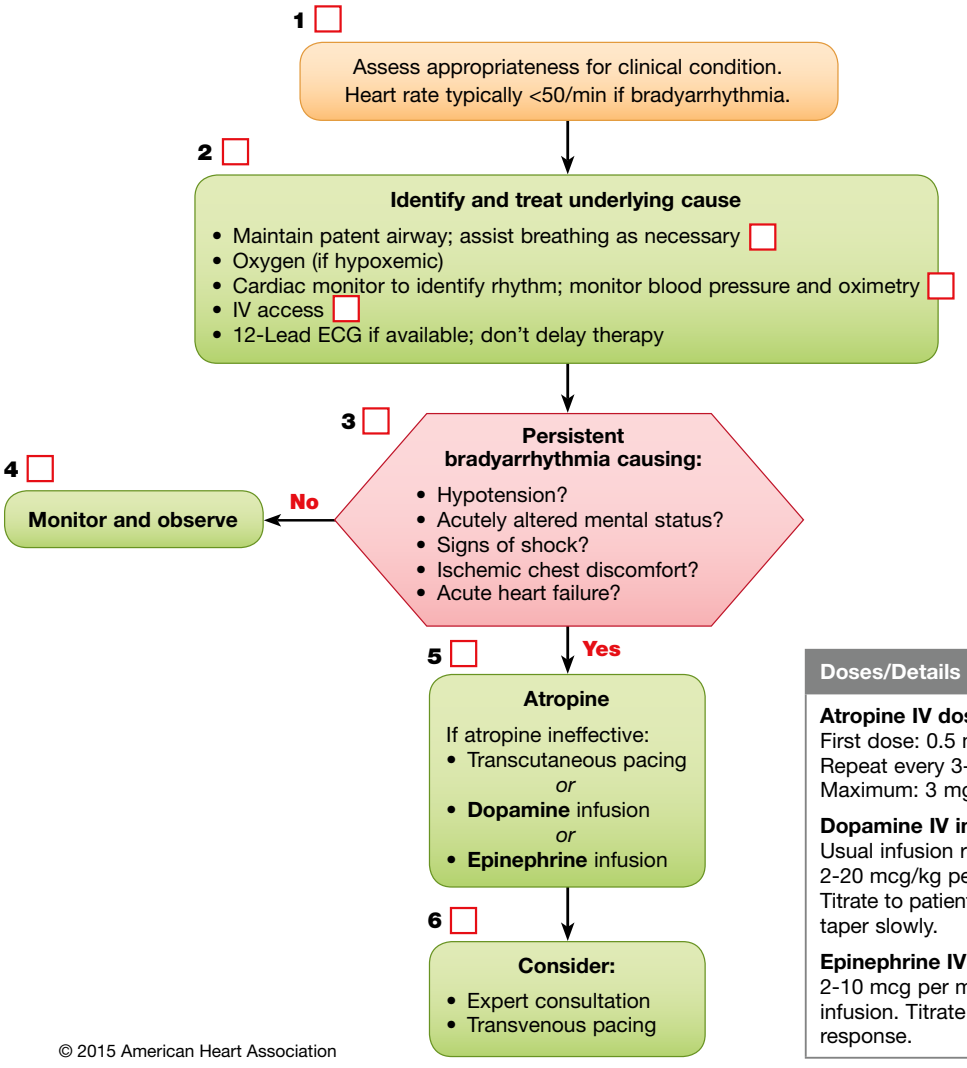
**Lead-in:** You are a healthcare provider on a cardiac telemetry unit. You note on the monitor that your patient is experiencing bradycardia at a rate of 36/min. You rapidly approach her room to see her clutching her chest and reaching out for help.

## Case Development

| | |
|---|---|
| **Initial Information** | You determine that the scene is safe. You assess that she has oxygen delivered at 2 L via nasal cannula with an $SpO_2$ of 96%. Cardiac telemetry shows a narrow, slow **sinus bradycardia** with a rate of 36/min. Her husband is at her bedside, holding her hand in a consoling manner. What are your next actions? |
| **Additional Information** | She has a patent IV and reports extreme fatigue. Her respirations are increasing to 20/min, blood pressure is 92/50 mm Hg, and she states that she has pressure in the middle of her chest.<br>What are your next actions? |
| **Additional Information (if needed)** | Upon further assessment, you note that your patient's skin is ashen and she says that her hands and feet feel very cold. Upon palpation, you note that her extremities are cool to the touch.<br>What are your next actions? |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm



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# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

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|---|---|---|---|
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| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 17
# Scenario Location: In-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 2

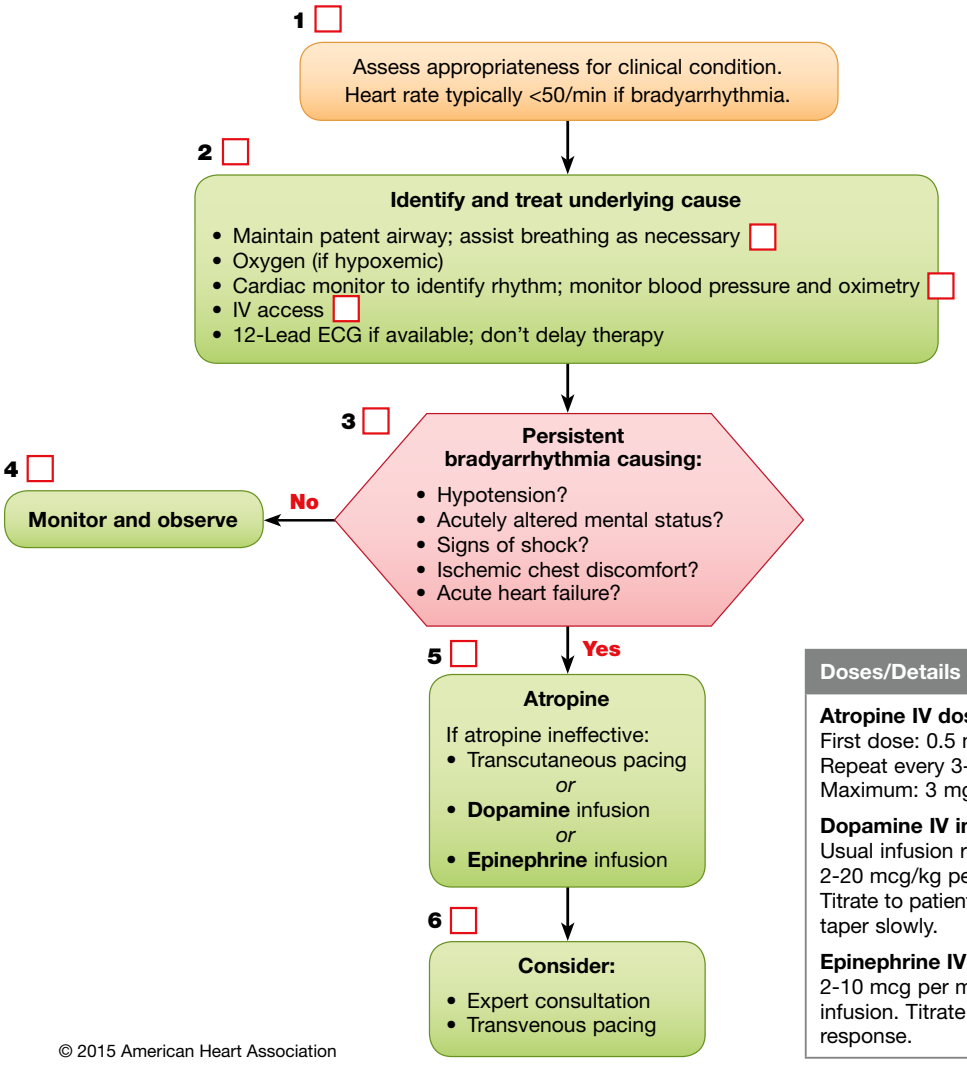
**Lead-in:** An 84-year-old woman with a history of hypertension and atrial fibrillation is admitted to the hospital with a urinary tract infe - tion and some confusion. Today, she is found to have worsening of her initially slow heart rate and worsening confusion.

## Case Development

| | |
|---|---|
| **Initial Information** | Now, the monitor indicates a heart rate of 20 to 30/min with a rhythm of **third-degree AV block**. The nurses assess the patient and find the blood pressure to be 70/30 mm Hg, and the patient is confused and agitated. What are your actions? |
| **Additional Information** | A dose of atropine is given with little effect, and the patient is then paced, which is successful. The student should describe how to pace a patient. |
| **Additional Information (if needed)** | If the student inquires, the patient is on both a β-blocker and a calcium channel blocker, and glucagon would be reason- able to provide, though pacing would still be necessary to resolve the bradycardia. The scenario should end with the consultation of cardiology and the consideration of a tempo- rary wire. |

# Bradycardia Learning Station Checklist

## Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

**Atropine IV dose:**
First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.

**Dopamine IV infusion:**
Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.

**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or transcutaneous pacing<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 18
# Scenario Location: In-Hospital
# Scenario Topic: Unstable Bradycardia

## Scenario Rating: 1

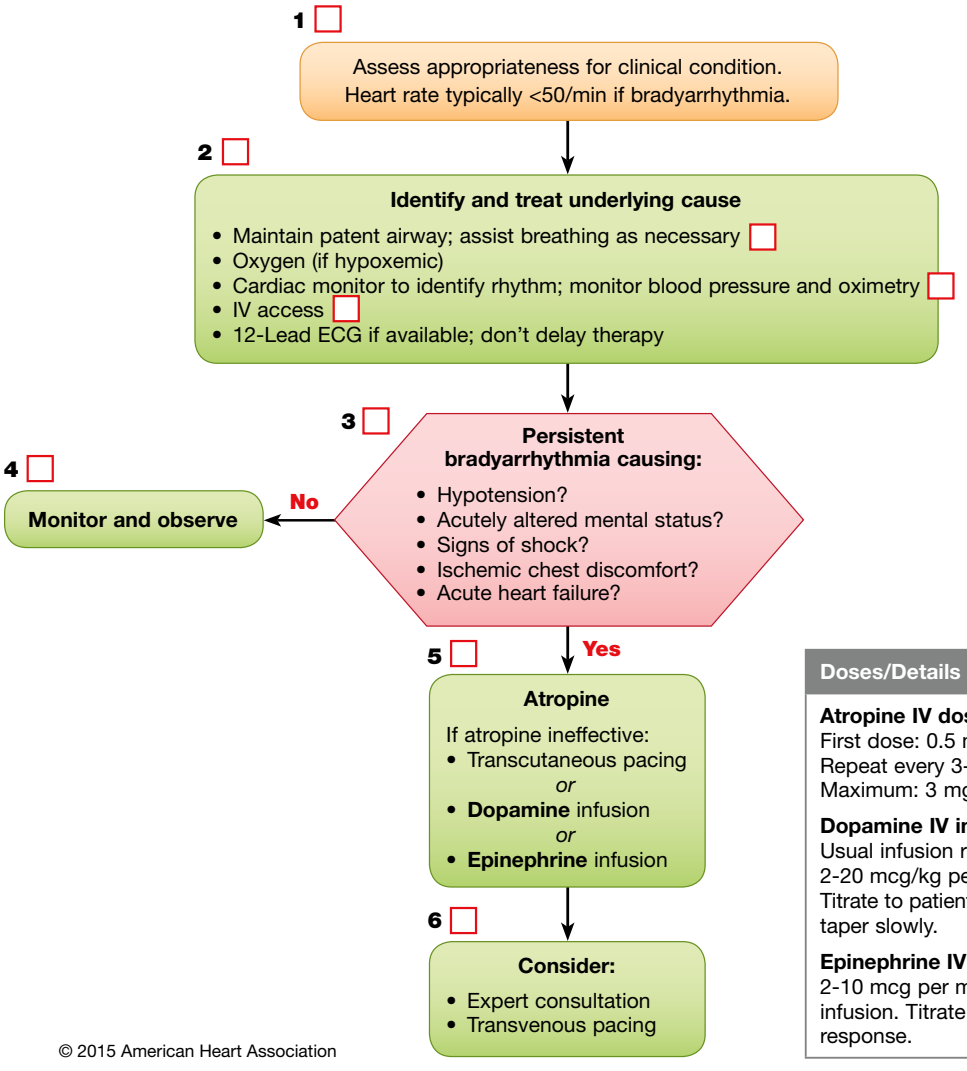
**Lead-in:** As you walk past the geriatric clinic, an elderly patient in front of you suddenly falls to the ground.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is alert and oriented. He is able to follow all commands. He has a gash across his forehead that is bleeding. He is able to speak clearly and reports feeling tired and lethargic for the past week. He is able to move all his extremities and is in no discomfort. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm strip shows an atrial rate of 80/min and a regular narrow QRS at 50/min (**third-degree AV block**). The P waves and the QRS complex appear disassociated. What are your actions? |
| **Additional Information (if needed)** | The patient's wife states that he has been previously healthy. On a recent physical, no major health issues were noted. He does not take any prescription medications. What are your next actions? |

## Bradycardia Learning Station Checklist

### Adult Bradycardia With a Pulse Algorithm






**Doses/Details**

**Atropine IV dose:**
First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.

**Dopamine IV infusion:**
Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.

**Epinephrine IV infusion:**
2-10 mcg per minute infusion. Titrate to patient response.

# *Debriefing Tool*

**ACLS Sample Scenario: Bradycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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# Case 19
# Scenario Location: Out-of-Hospital
# Scenario Topic: Stable Tachycardia

## Scenario Rating: 1

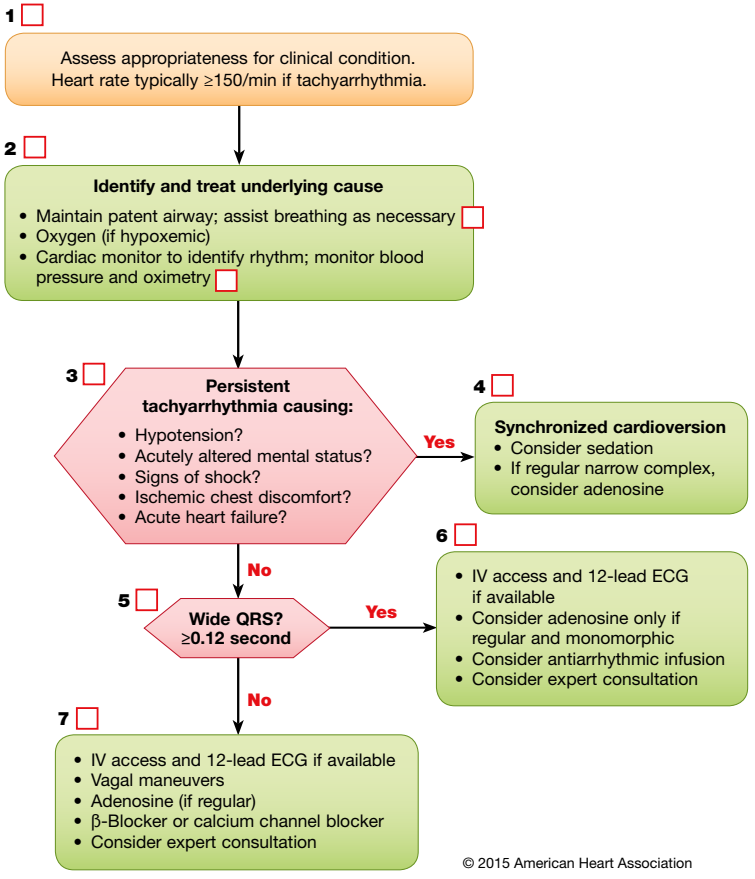
**Lead-in:** You are a paramedic and respond to an altered mental status patient call. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Information** | A 73-year-old man presents with weakness and an inability to get out of bed. The patient's son says that the day before, his father had a period when he could not speak or understand words. About 3 weeks ago, the patient was unable to stand unaided because of weakness in his legs. The patient would not go to the emergency department in either case. The patient has a history of atrial fibrillation, hypertension, and diabetes.<br><br>His initial vital signs are heart rate 116/min, respiratory rate 24/min, and $SpO_2$ of 94%.<br><br>What are your next actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check finds **atrial fibrillation** with rapid ventricular response. What are your actions? |
| **Additional Information (if needed)** | The patient's blood pressure is 134/82 mm Hg. What are your next actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

**Amiodarone IV dose:**
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

**Sotalol IV dose:**
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or synchronized/ unsynchronized cardioversion<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 20
# Scenario Location: Emergency Department
# Scenario Topic: Stable Tachycardia

## Scenario Rating: 1

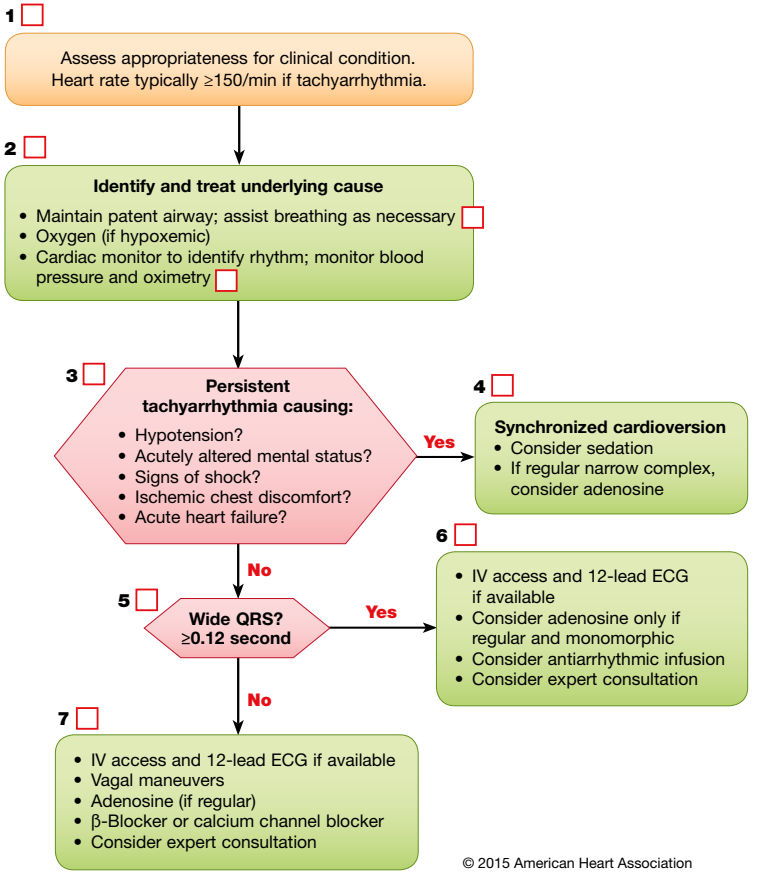
**Lead-in:** While you are working in the emergency department, a man is brought in by EMS, who reports a "fast heart rate." The patient was at dinner with his family when he noted palpitations, chest pressure, diaphoresis, and nausea.

## Case Development

| | |
|---|---|
| **Initial Information** | When you walk into the room, you note a 52-year-old man who is anxious, diaphoretic, and holding his chest. What are your actions? |
| **Additional Information** | His initial vital signs are pulse 155/min, blood pressure 136/45 mm Hg, and $SpO_2$ of 97% on room air. The patient is placed on a monitor, and the rhythm appears narrow and regular. What are your actions now?<br>A trial of adenosine 6 mg slows down the heart rate to reveal **atrial flutter**. The patient starts on an IV calcium channel blocker and then is admitted to cardiology. |
| **Additional Information (if needed)** | The patient notes that he recently returned from a 3-hour plane flight, and he has been training for a marathon and taking dietary supplements and "energy pills." He also had a few cups of coffee at dinner this evening. |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

**Amiodarone IV dose:**
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

**Sotalol IV dose:**
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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| Action | Gather | Analyze | Summarize |
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| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 21
# Scenario Location: In-Hospital—Acute Medical-Surgical Unit
# Scenario Topic: Stable Tachycardia

## Scenario Rating: 1

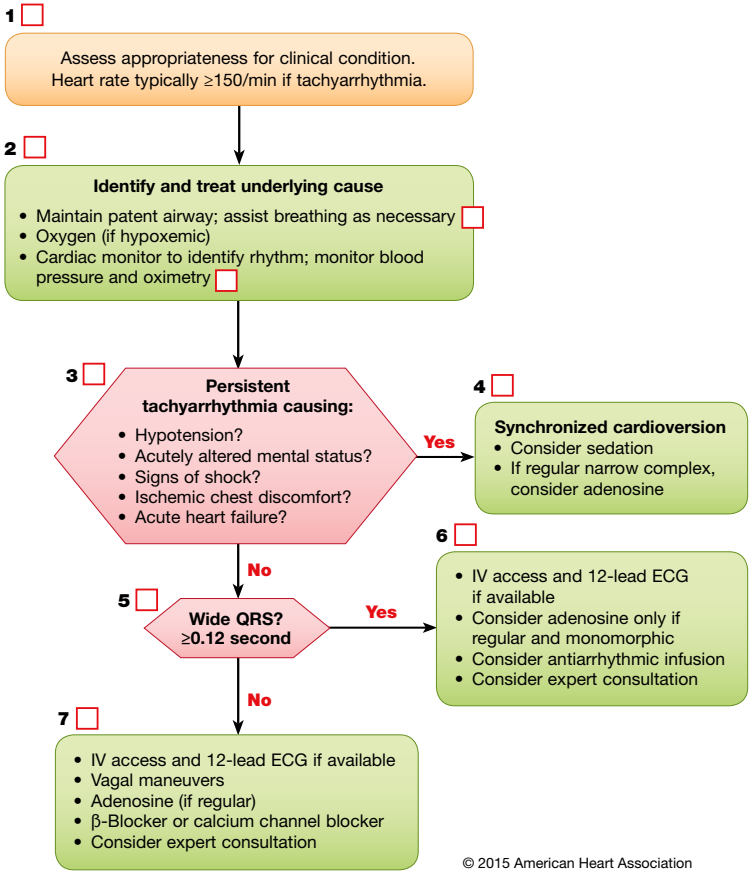
**Lead-in:** You are a healthcare provider responding to a call light of a patient who feels like her "chest is going to explode."

## Case Development

| | |
|---|---|
| **Initial Information** | You determine that the scene is safe and that your patient is an 86-year-old woman admitted with exacerbation of asthma. She has a respiratory rate of 18/min. Cardiac telemetry shows a narrow, rapid rhythm of 123/min (**sinus tachycardia**). Her blood pressure is 123/78 mm Hg. She is currently not using oxygen therapy. What are your next actions? |
| **Additional Information** | As you are discussing events that led to her heart event, you notice that she has a nebulizer mask hanging over the oxygen flow meter. What are your next actions? |
| **Additional Information (if needed)** | Your patient tells you that she has had many nebulizer treatments in the past, but she has never felt like this in the past. She is frightened and anxious, and she is visibly shaking. What are your next actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
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- Narrow regular: 50-100 J
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**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

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# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

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# Case 22
# Scenario Location: In-Hospital
# Scenario Topic: Stable Tachycardia

## Scenario Rating: 1

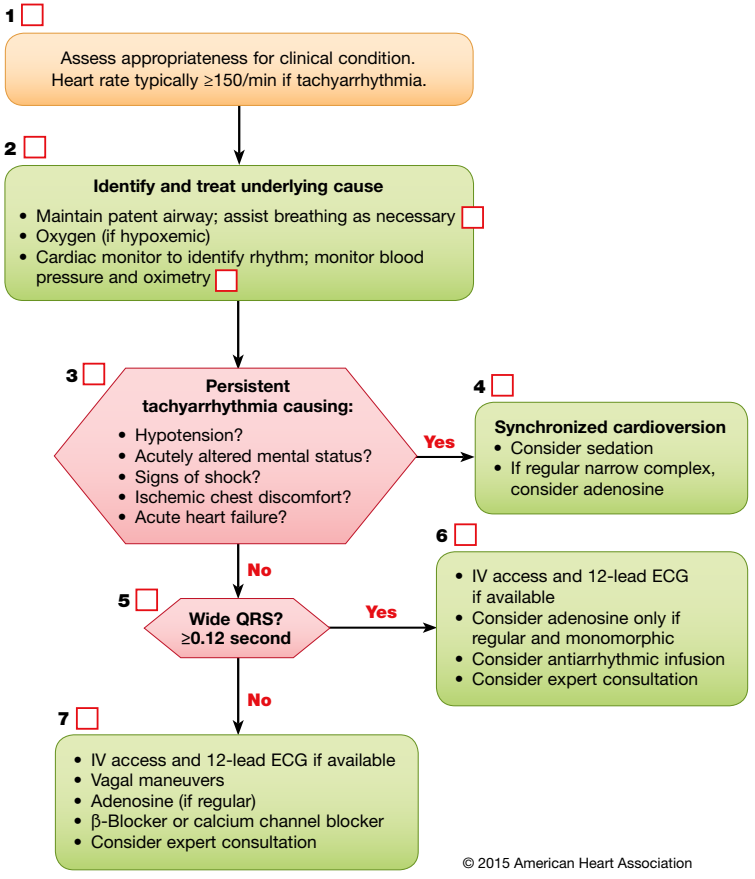
**Lead-in:** An 80-year-old man is recovering in the postanesthesia care unit after an elective inguinal hernia surgery. He is asymptomatic and reports feeling well to the nurse who is taking his vital signs. His blood pressure remains unchanged, but the nurse notices a sudden increase in his heart rate, which is also confirmed on the monitor. You are asked to evaluate the patient.

## Case Development

| | |
|---|---|
| **Initial Information** | He is alert and oriented. His right radial pulse is irregular at a rate of 140/min. His blood pressure is 110/60 mm Hg. He is asymptomatic and his lungs are clear to auscultation. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. The ECG strip shows a **narrow-complex QRS tachycardia** with beat-to-beat variation in the respiratory rate interval. What is the diagnosis? What are your actions? |
| **Additional Information (if needed)** | As you await the arrival of medications to the bedside, you notice that the patient has a regular heart rate of 84/min on the monitor, and a bedside ECG confirms normal sinus rhythm. The patient remains asymptomatic. What are your actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm



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**Sotalol IV dose:**
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# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

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| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or synchronized/ unsynchronized cardioversion<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 23
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Tachycardia

## Scenario Rating: 2

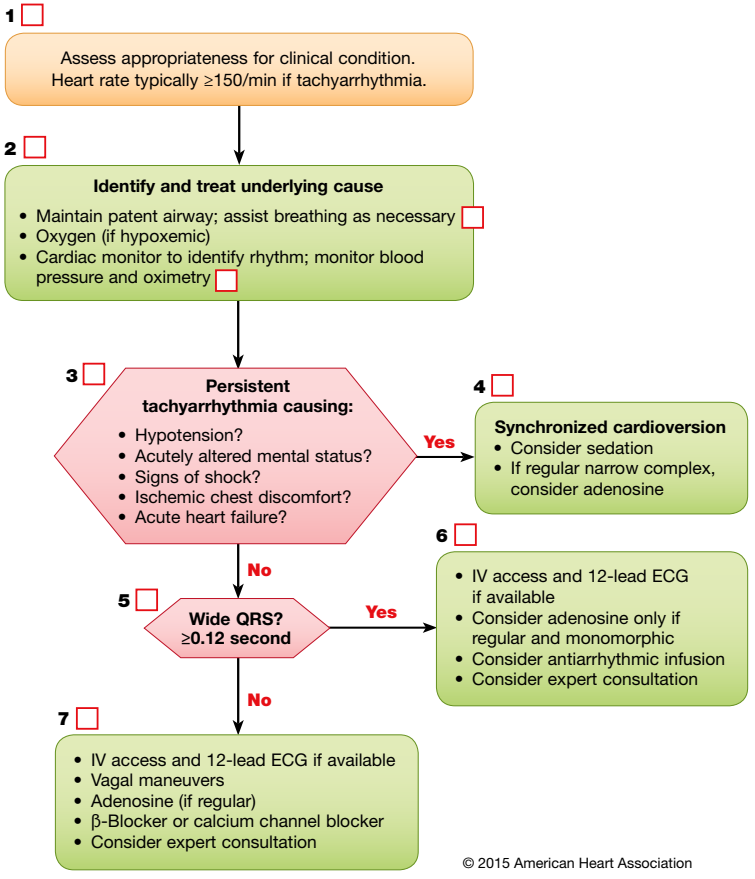
**Lead-in:** You are on an advanced life support ambulance and dispatched to an unknown illness at a private residence.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. The patient is a 68-year-old woman who is lying in the front doorway of her residence. Her son helped her into the doorway to get some cool air (it is 30°F outside). She did not fall or injure herself in any way.<br><br>Her son is the only bystander you have available, and he is anxious. She is anxious, in mild respiratory distress, and grossly diaphoretic. She states that she is short of breath; feels hot, dizzy, and nauseated; and feels she can't get a deep breath. Her pertinent history includes obesity, non–insulin-dependent diabetes mellitus (NIDDM), and hypertension. What are your initial actions? |
| **Additional Information** | Your partner attempts to obtain vital signs and finds her respiratory rate at 22/min, her carotid pulse is fast (too fast to count), and he cannot obtain an auscultated or palpated blood pressure due to the absence of a radial pulse. She has no obvious dependent edema, and her neck veins are flat. Her lungs sounds are equal with moderate rales present bilaterally. What are your next actions? |
| **Additional Information (if needed)** | After you attach the limb leads of the cardiac monitor, the patient appears in **monomorphic wide-complex (VT) tachycardia**. Peripheral IV access is not obtainable. Two attempts at cardioversion (note that local protocols may vary on the scope of this practice) were unsuccessful without change in rate or rhythm. An IO was placed, and the patient is receiving an amiodarone infusion. After 5 minutes of amiodarone, the patient is cardioverted a third time successfully to a normal sinus rhythm at 80/min. The vital signs then return toward normal. |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

**Amiodarone IV dose:**
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

**Sotalol IV dose:**
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

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| Action | Gather | Analyze | Summarize |
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# Case 24
# Scenario Location: Out-of-Hospital
# Scenario Topic: Unstable Tachycardia

## Scenario Rating: 2

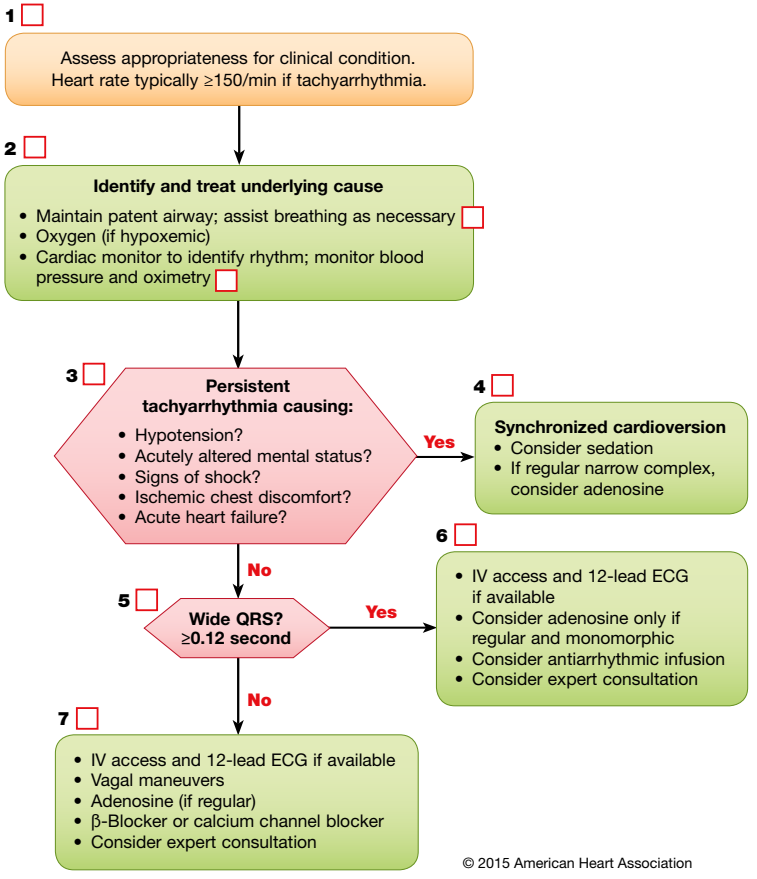
**Lead-in:** You are a paramedic who responds to a report of a woman who passed out in a gym. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is a 25-year-old woman who is lying on the floor. The patient is alert and oriented but pale and diaphoretic. Firefighters are unable to obtain a blood pressure. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check finds a **narrow-complex tachycardia (SVT)** with a rate of 210/min. What are your actions? |
| **Additional Information (if needed)** | The patient is taking over-the-counter herbal appetite suppressants. She became dizzy while working out. No other medical history is available. What are your next actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

**Amiodarone IV dose:**
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

**Sotalol IV dose:**
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

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| Action | Gather | Analyze | Summarize |
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| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or synchronized/ unsynchronized cardioversion<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 25
# Scenario Location: Emergency Department
# Scenario Topic: Unstable Tachycardia

## Scenario Rating: 3

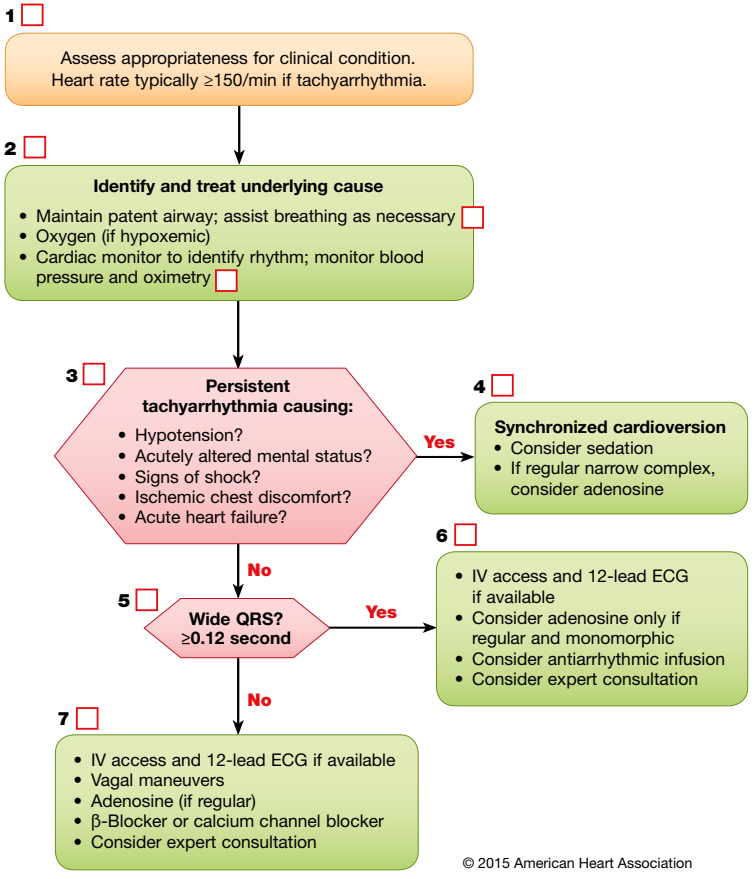
**Lead-in:** You are an emergency department care provider assessing a 35-year-old woman. She presents to the emergency department reporting multiple episodes of syncope and palpitations.

## Case Development

| | |
|---|---|
| **Initial Information** | She has had these episodes for years, but they have become more frequent over the last few days. She states that she is feeling very weak. Her vital signs are heart rate 160/min, respiratory rate 16/min, blood pressure 80/65 mm Hg, temperature 36.3°C, $O_2$ saturation 96%, finger-stick glucose 59 mg/dL (3.3 mmol/L), and weight 60 kg. What are your initial actions?<br><br>The ECG shows **atrial fibrillation with Wolff-Parkinson-White** (irregular, wide-complex ECG). |
| **Additional Information** | The patient has a past medical history as a smoker, with no medications and no allergies.<br><br>During the interview, her palpitations worsen and she becomes short of breath. Electrical cardioversion restores normal sinus rhythm. A follow-up ECG reveals normal sinus rhythm with signs of an accessory pathway (delta wave, short PR interval).<br><br>If students deliver an AV nodal blocking agent (eg, calcium channel blocker, β-blocker, adenosine), the patient will deteriorate into a ventricular response of 300 briefly before a VF arrest, which is resistant to all therapies. |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
- Narrow regular: 50-100 J
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- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

**Amiodarone IV dose:**
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

**Sotalol IV dose:**
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

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| Action | Gather | Analyze | Summarize |
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| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate drug treatment or synchronized/ unsynchronized cardioversion<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 26
# Scenario Location: Emergency Department
# Scenario Topic: Unstable Tachycardia

## Scenario Rating: 2

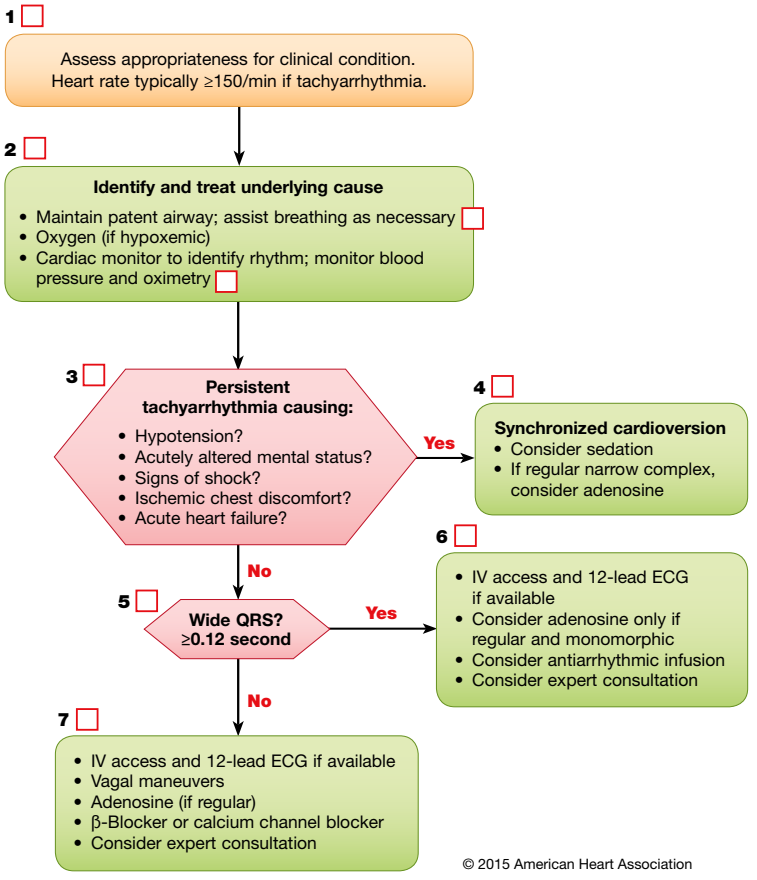
**Lead-in:** A 35-year-old woman presents to the emergency department accompanied by her husband. He reports that while eating dinner at a neighborhood restaurant, his wife suddenly lost consciousness and was staring into space for 4 to 5 seconds.

## Case Development

| | |
|---|---|
| **Initial Information** | The husband did not notice any seizure-like activity. The patient is a marathon runner and works as a school teacher. Over the past week, she developed nasal congestion and was prescribed clarithromycin for presumed sinusitis at a walk-in clinic. What are your initial actions?<br><br>She is placed on a cardiac monitor. Her physical and neurological exam is unremarkable. A 12-lead ECG is performed (show long QTc). What are your actions? |
| **Additional Information** | The nurse suddenly notices the patient to be briefly unresponsive. The ECG monitor shows **polymorphic VT**. She has a pulse. What are your actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm






**Doses/Details**

**Synchronized cardioversion:**
Initial recommended doses:
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- Wide regular: 100 J
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**Adenosine IV dose:**
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

***Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia***

**Procainamide IV dose:**
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

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# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Recognize tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
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# Case 27
# Scenario Location: In-Hospital—Intermediate Medical-Surgical Unit
# Scenario Topic: Unstable Tachycardia

## Scenario Rating: 1

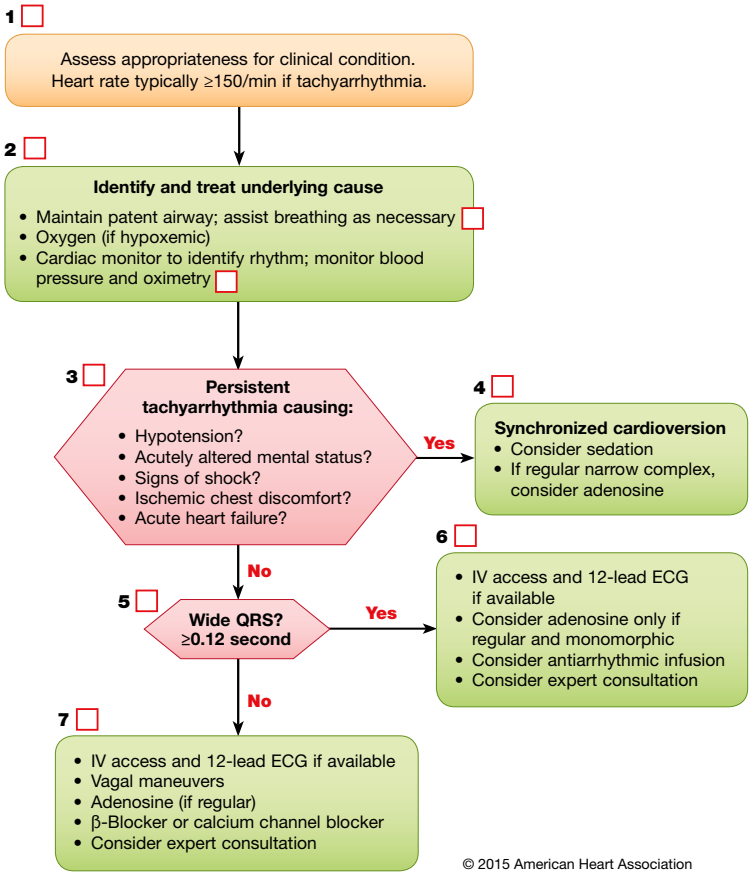
**Lead-in:** You are a healthcare provider on an intermediate medical-surgical unit caring for a motor vehicle crash trauma patient with a chest tube. His wife runs to the nurses' station, screaming that her husband needs help.

## Case Development

| | |
|---|---|
| **Initial Information** | You determine that the scene is safe. You see a 28-year-old man whose cardiac telemetry shows a narrow, rapid rhythm (**SVT**) at 166/min. His respiratory rate is 24/min. Oxygen is delivered at 4 L via nasal cannula, and $SpO_2$ is 94%. What are your next actions? |
| **Additional Information** | Using a Doppler, you find that his blood pressure is 86 mm Hg systolic. You note cutaneous vasoconstriction, and he is becoming less responsive to your voice and commands. What are your next actions? |
| **Additional Information (if needed)** | You assess that the chest tube is working appropriately, but the output has increased greatly from minimal drainage to over 2000 mL. Your patient's respirations have now increased to 28/min, and his wife is screaming for you to do something *now*. The cardiac rhythm continues to be narrow and rapid without ectopy. What are your next actions? |

# Tachycardia Learning Station Checklist

## Adult Tachycardia With a Pulse Algorithm



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**Sotalol IV dose:**
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# *Debriefing Tool*

**ACLS Sample Scenario: Tachycardia**

## Learning Objectives

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# Case 28
# Scenario Location: Out-of-Hospital
# Scenario Topic: Cardiac Arrest (VF/pVT)—Obstetrics

## Scenario Rating: 3

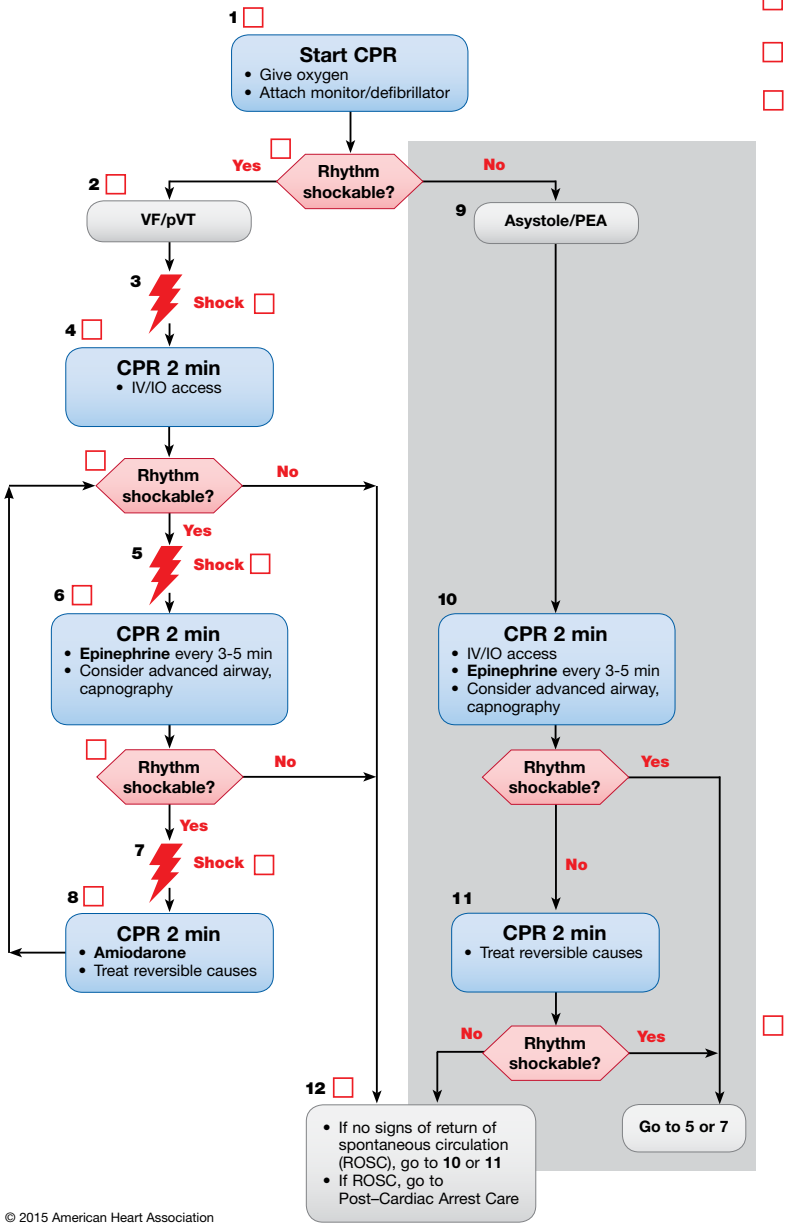
**Lead-in:** You are a paramedic and respond to a home for a patient in her third trimester of pregnancy with CPR in progress.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient's husband tells you that she has had a high-risk pregnancy and has been on bed rest since the 20th week of pregnancy. She is currently in her 34th week. The patient had reported increasing, severe shortness of breath, had a decreased level of consciousness, and became apneic and unresponsive before arrival by EMS. What are your initial actions? Cardiac arrest is confirmed by EMS, and CPR is started. Your partner is retrieving the monitor/defibrillator. |
| **Additional Information** | The patient is pulseless and apneic, and the cardiac monitor shows VF. What are your next actions?<br><br>You have administered 1 shock, and CPR is being continued. You establish an IO. What are your next actions?<br><br>Intubation is complicated by the anatomical changes of the patient during pregnancy. Consider placing an alternative airway, such as a laryngeal tube. During CPR, your partner should perform manual left uterine displacement to relieve aortocaval compression. |

# Cardiac Arrest VF/pVT Learning Station Checklist

## Adult Cardiac Arrest Algorithm—2015 Update






### CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

### Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

### Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

### Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

### Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

### Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
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- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

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## General Debriefing Principles

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| Action | Gather | Analyze | Summarize |
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| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 29
# Scenario Location: Out-of-Hospital
# Scenario Topic: Cardiac Arrest (VF/pVT)

## Scenario Rating: 2

**Lead-in:** You are a paramedic returning with 3 coworkers from an EMS conference. You are 90 minutes into a 5-hour redeye flight when you hear someone loudly trying to wake another passenger 4 rows in front of you and your coworkers. A middle-aged man won't wake up to his spouse's urging. The flight attendants a e trying to get him from his window seat into the aisle when the 4 in your group offer assistance.

## Case Development

| | |
|---|---|
| **Initial Information** | You notice as the crew members are lying him supine in the aisle that he takes an agonal breath. His wife says he has been complaining of indigestion for the past 8 hours and has been burping more than normal.<br><br>The flight crew is trained in Hands-Only CPR.<br><br>After your team members identify themselves as medical providers, the flight crew thanks you and says, "How can we help you?"<br><br>After you request it, the flight crew retrieves an AED and the emergency medical kit, which has some advanced-level items, including at least 2 doses of all ACLS cardiac arrest drugs, peripheral IV equipment, personal protective equipment, a bag-mask device, and a supraglottic airway that is size appropriate. What are your initial actions? |
| **Additional Information** | The patient is unresponsive, taking 2 to 3 agonal breaths per minute, pulseless with skin becoming gray and mottled.<br><br>The AED shocks on the first attempt. What are your actions? |
| **Additional Information (if needed)** | CPR is continued, and the AED delivers a shock for a second time. The patient then receives 1 dose of epinephrine.<br><br>MedAire is the medical command available to the pilot. The pilot has made them aware of the situation, and they are available to you by radio for consultation.<br><br>The pilot wants your opinion on the urgency to land. There is a smaller, more rural airstrip within 15 minutes or a larger urban airport 25 minutes away. The pilot has received clearance from air traffic control to descend from 35 000 to 25 000 feet while you are treating the patient. |

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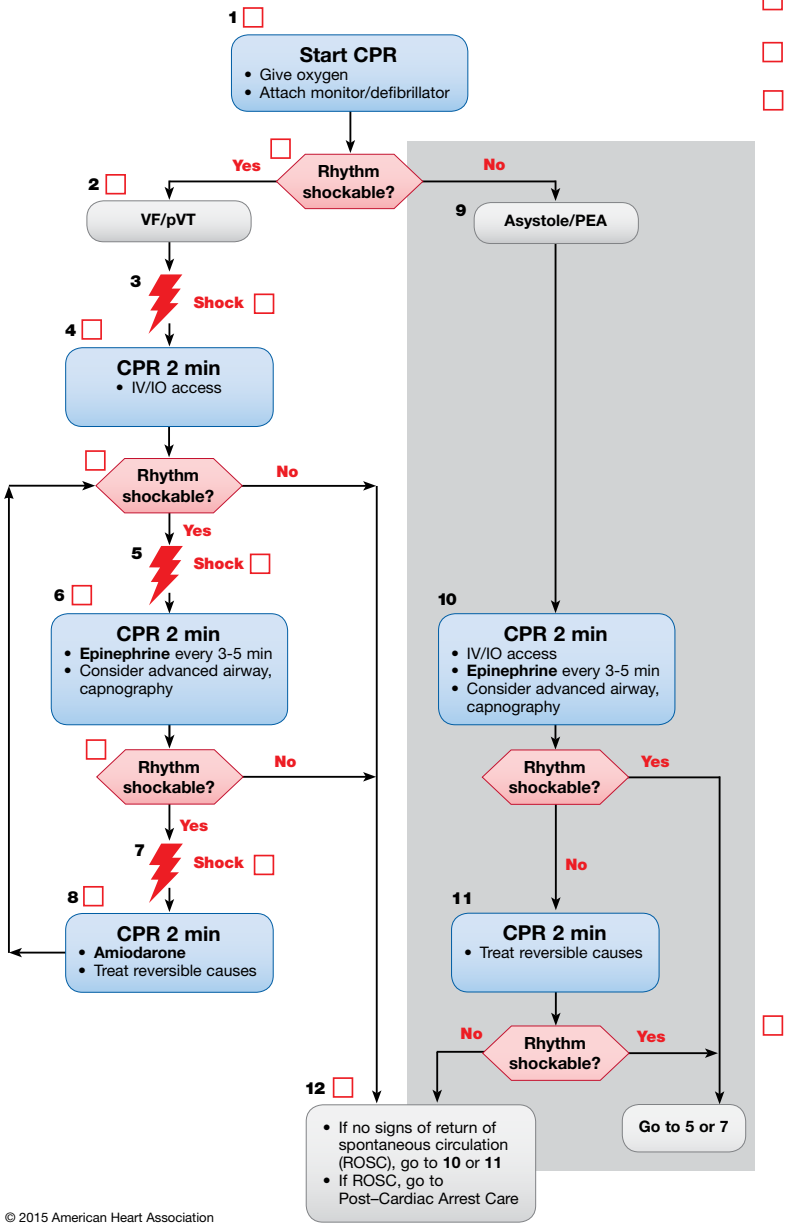




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**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
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# Case 30
# Scenario Location: Out-of-Hospital
# Scenario Topic: Cardiac Arrest—LVAD

## Scenario Rating: 3

**Lead-in:** You are a paramedic who responds to a report of an unconscious person.

## Case Development

| | |
|---|---|
| **Initial Information** | The scene is safe. The patient is an unconscious 67-year-old man who had a left ventricular assist device (LVAD) implantation about 8 months ago. The patient had no pulse when first responders arrived, but the wife insisted that they not perform chest compressions. The first responders also did not attach the AED. There is an alarm sounding from the LVAD's external machinery. What are your actions? |
| **Additional Information** | You attach a cardiac monitor/defibrillator. A rhythm check finds a **VF**. What are your actions? |
| **Additional Information (if needed)** | Auscultation of the chest (if performed) will reveal no machine sounds.<br>What are your next actions? |

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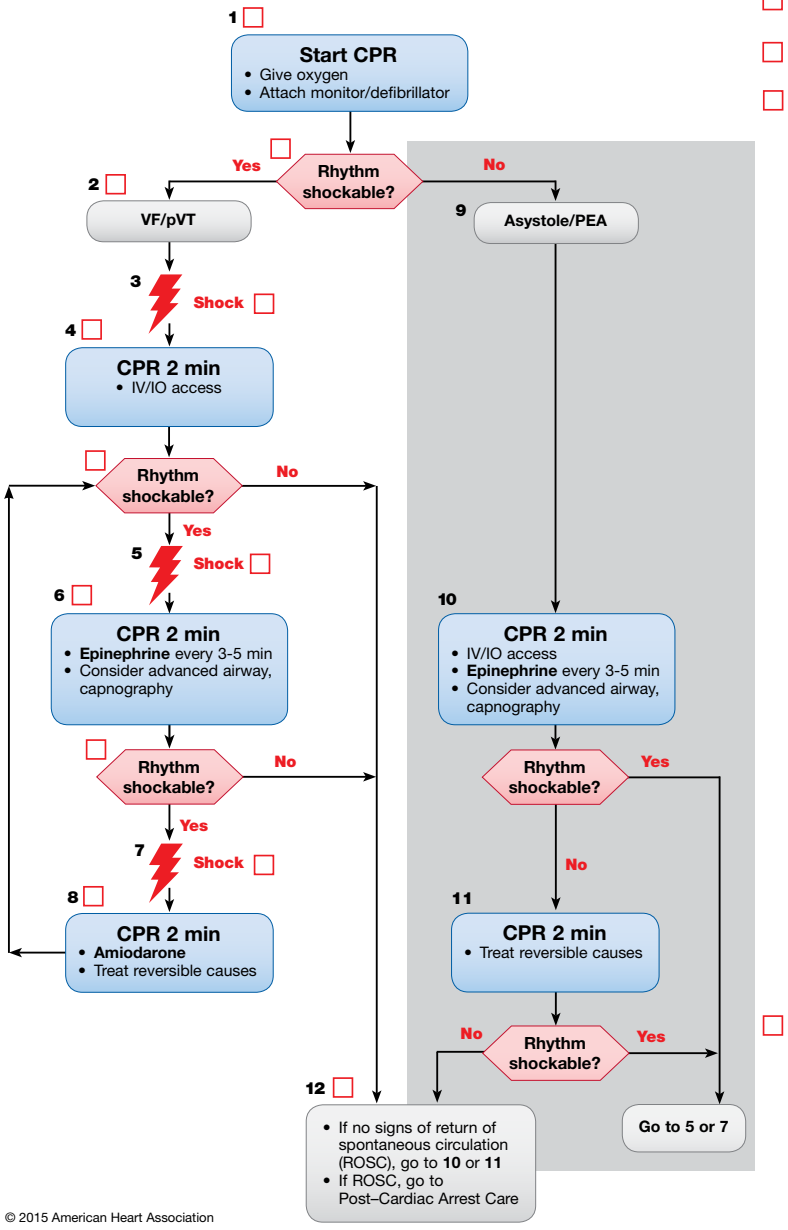




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# Case 31
# Scenario Location: Out-of-Hospital—Outpatient Clinic
# Scenario Topic: Cardiac Arrest (PEA)

## Scenario Rating: 2

**Lead-in:** You are a paramedic responding to an outpatient methadone clinic for a patient who is not breathing.

## Case Development

| | |
|---|---|
| **Initial Information** | Staff at the clinic tells you that a patient came in for an appointment and became unresponsive in the waiting room. CPR is in progress, and there is an AED that has been applied, but "no shock" was advised. What are your initial actions?<br><br>The patient is **pulseless** and apneic, and the cardiac monitor shows a **sinus tachycardia** (PEA). What are your next actions? |
| **Additional Information** | You have established an IV and administered epinephrine. There is some vomitus in the hypopharynx. What are your next actions?<br><br>The patient is highly susceptible for opioid overdose. The patient has an unmanageable BLS airway. The airway should be secured with an advanced airway. Should naloxone be considered? Naloxone will only reverse the respiratory suppression; it will not reverse the systemic perfusion effects caused by hypoventilation and the subsequent oxygen desaturation. Patients with opioid-associated cardiac arrest are managed in accordance with standard ACLS practices. |
| **Additional Information (if needed)** | After 4 minutes of CPR, the patient is found to have a weak pulse and a blood pressure of 82/53 mm Hg. What are your next actions?<br><br>The paramedic should maintain the patient's airway and consider the patient's level of consciousness. Additionally, supplementary oxygen and fluid therapy must be administered. |

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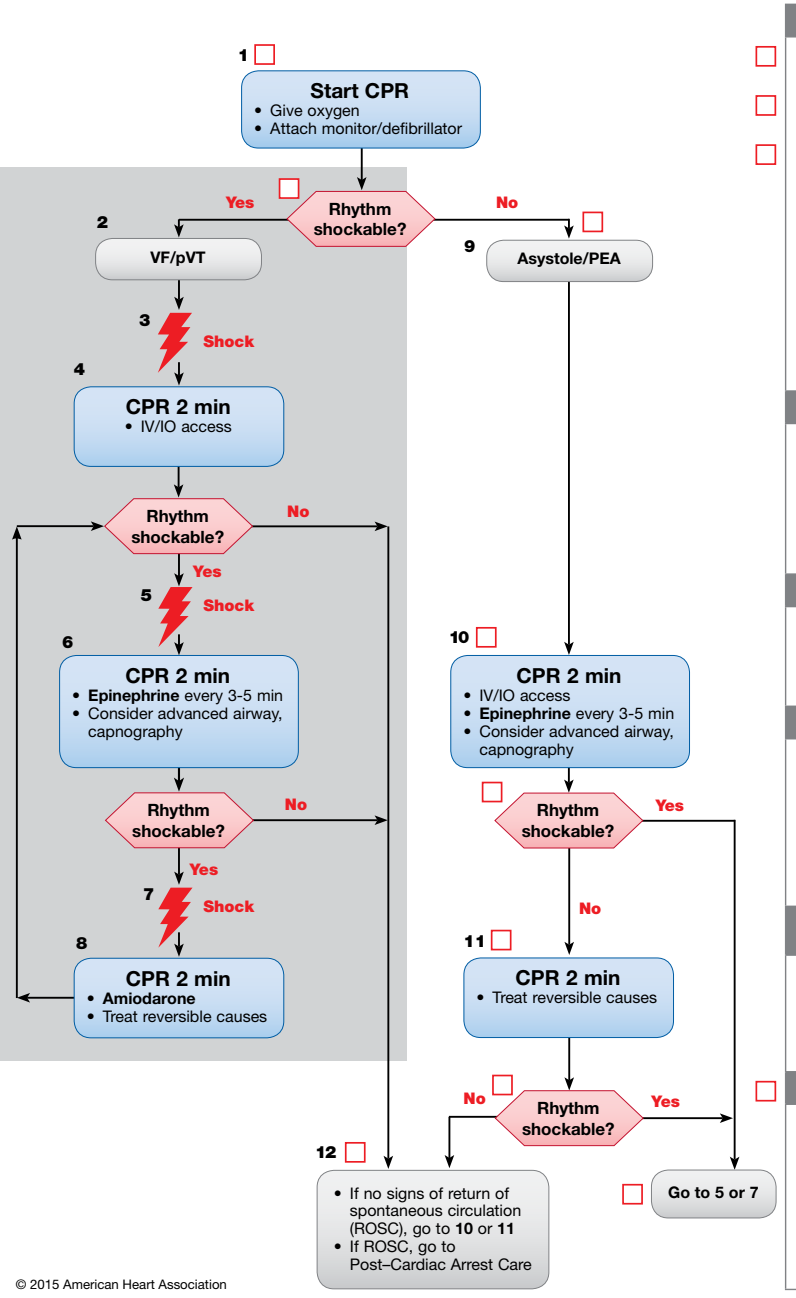

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# Case 32
# Scenario Location: Emergency Department
# Scenario Topic: Cardiac Arrest—LVAD

## Scenario Rating: 2

**Lead-in:** You are evaluating a left ventricular assist device (LVAD) patient in the emergency department who is reporting dizziness.

## Case Development

| | |
|---|---|
| **Initial Information** | His initial set of vital signs show a heart rate of 200/min and blood pressure of 90/50 mm Hg, and an ECG shows **wide-complex tachycardia** suspicious for VT. The nurses say that they are unable to obtain a pulse oximetry reading on the patient. What are your initial actions?<br><br>On initial assessment, the patient is awake and talking to you. He says that he has received 2 shocks from his automated implantable cardioverter defibrillator (AICD). While you are assessing him, he suddenly becomes unconscious and unresponsive with agonal respirations.<br><br>As the patient becomes unconscious and unresponsive, his AICD delivers another shock and converts his rhythm to a paced rhythm at 80/min. What are your actions? |
| **Additional Information** | When you assess the motor of the LVAD, you can hear it humming.<br><br>The patient remains unresponsive and unconscious, with agonal respirations. What are your next actions? |
| **Additional Information (if needed)** | After AICD defibrillation and fluid bolus, the patient regains spontaneous respirations, becomes responsive, and localizes to pain. |

***Note: May need Cardiac Arrest Algorithm.***

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# Case 33
# Scenario Location: In-Hospital—Cath Lab
# Scenario Topic: Cardiac Arrest (VF/pVT)

## Scenario Rating: 1

**Lead-in:** A 54-year-old diabetic man is awaiting coronary angiography in the cath lab holding room when he develops sudden-onset crushing chest pain similar to what he had been experiencing the previous week.

## Case Development

| | |
|---|---|
| **Initial Information** | His nurse gives him a sublingual nitroglycerin tablet with prompt relief of symptoms. What are your initial actions?<br><br>His vital signs are stable. The nurse puts him on a cardiac monitor and goes down the hall to get the ECG machine. When she returns, he is unresponsive. The monitor now reveals **VF**. What are your next actions? |
| **Additional Information** | High-quality compressions should immediately be started and defibrillation pads placed. The patient should be shocked as soon as possible.<br><br>What are your next actions?<br><br>One mg of epinephrine should be given after the second shock, and an anti-arrhythmic drug may be considered for refractory VF. |

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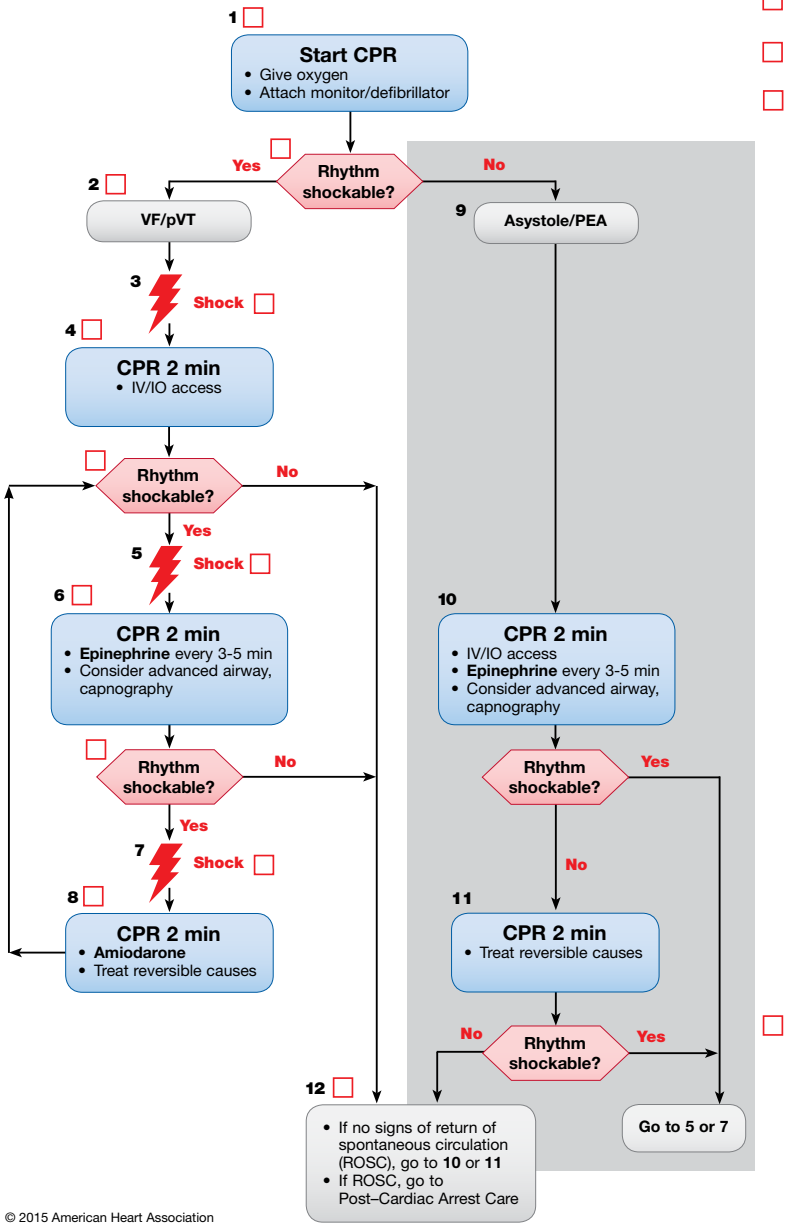





**CPR Quality**

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

**Drug Therapy**

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

**Advanced Airway**

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

**Return of Spontaneous Circulation (ROSC)**

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 34
# Scenario Location: In-Hospital—ICU
# Scenario Topic: Cardiac Arrest (VF/pVT)

## Scenario Rating: 1

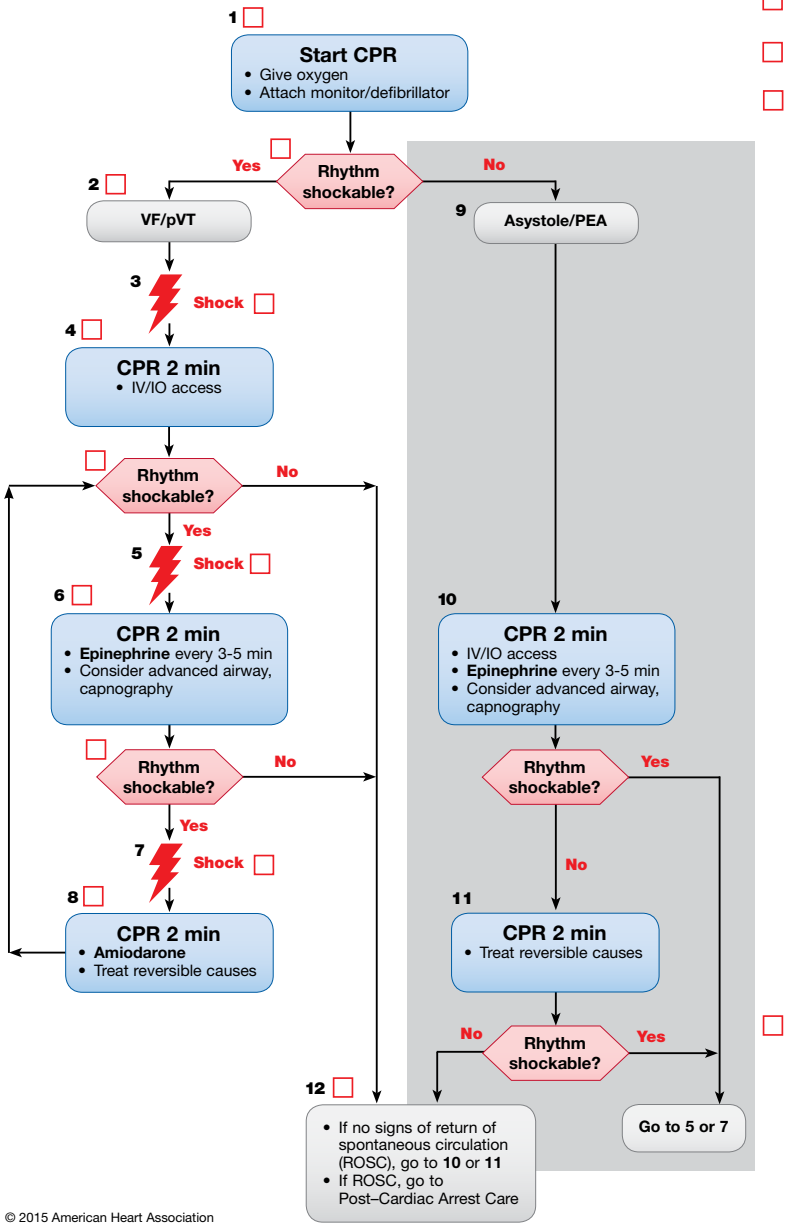
**Lead-in:** You are a healthcare provider caring for a patient admitted from the Emergency Department after he collapsed in full arrest in a nearby park as he was participating in a 15-km city road race. Bystanders called 9-1-1 and began CPR until prehospital providers arrived.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient has continuous cardiac, oximetry, and respiratory rate monitoring. His baseline vital signs are heart rate 48/min, respiratory rate 12/min, blood pressure 126/80 mm Hg, and temperature 99°F, oral. Cardiac telemetry shows narrow rhythm (**sinus bradycardia**) without ectopy.<br><br>You note a change in rhythm and rate at the nurses' station cardiac monitor system. Upon room entry, you see a wide, rapid rhythm (**VT**). Your patient is unresponsive, is not breathing, and has no palpable pulses. You and your colleagues begin CPR and notify the attending physicians and residents of your patient's status. What is your initial action? |
| **Additional Information** | You determine that the rhythm is pulseless VT. A peer prepares to defibrillate while high-quality CPR and bag-mask ventilations with 100% oxygen are started immediately. Another team member is trying to establish IO access. What are your next actions? |
| **Additional Information (if needed)** | After appropriate shock delivery, CPR continues. Epinephrine is administered after the second shock, and antiarrhythmics are considered.<br><br>What should be considered as you continue to resuscitate your patient? |

# Cardiac Arrest VF/pVT Learning Station Checklist

## Adult Cardiac Arrest Algorithm—2015 Update






### CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

### Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

### Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

### Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

### Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

### Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize cardiac arrest
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| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 35
# Scenario Location: In-Hospital—Radiology
# Scenario Topic: Cardiac Arrest (PEA)

## Scenario Rating: 3

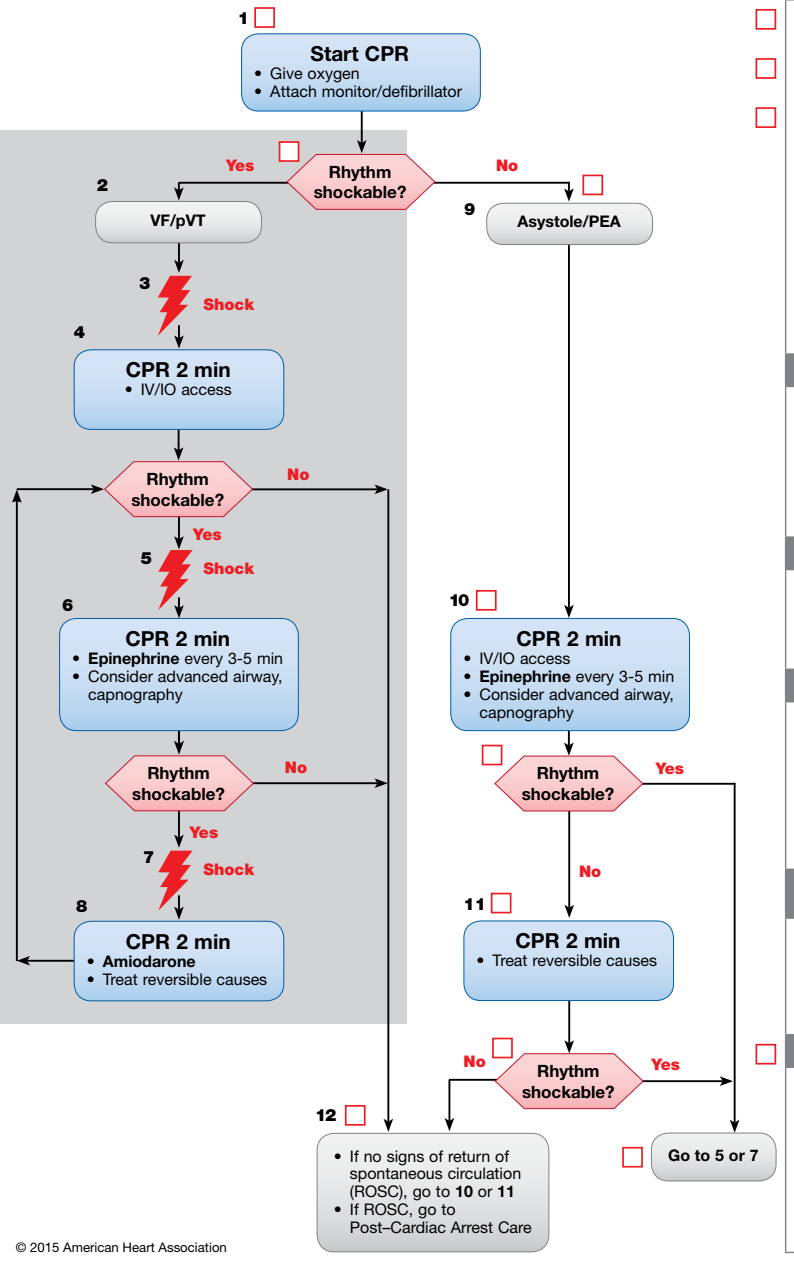
**Lead-in:** A patient becomes unresponsive while getting checked in to a hospital dialysis unit. The Code Team is activated.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is a 52-year-old woman with a history of hypertension and kidney disease. An initial assessment reveals a patient who is not breathing and has no palpable pulse. What are your actions? |
| **Additional Information** | CPR is initiated. The patient is placed on a monitor. Her initial vital signs are pulse 0, blood pressure 0/0 mm Hg, and $SpO_2$ 40% on room air. The rhythm on the monitor demonstrates a wide-complex pattern. What are your actions now?<br><br>This is a case of PEA cardiac arrest.<br><br>The Code Team establishes a definitive airway with bag-mask ventilation with 100% $O_2$. IV access is obtained. CPR is continued. IV epinephrine is given after the second cycle. What are your next actions? |
| **Additional Information (if needed)** | The scenario can include ROSC. Hyperkalemia due to chronic renal failure is suspected and then treated (IV calcium chloride), the QRS complex narrows, the pulse returns, and the patient is transferred to ICU. The scenario can also be run to lead to an unsuccessful resuscitation. |

# Cardiac Arrest Asystole/PEA Learning Station Checklist

### Adult Cardiac Arrest Algorithm—2015 Update






**CPR Quality**

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

**Drug Therapy**

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

**Advanced Airway**

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

**Return of Spontaneous Circulation (ROSC)**

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
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- Model effective communication as a member or leader of a high-performance team
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# Case 36
# Scenario Location: In-Hospital
# Scenario Topic: Cardiac Arrest (VF/pVT)

## Scenario Rating: 2

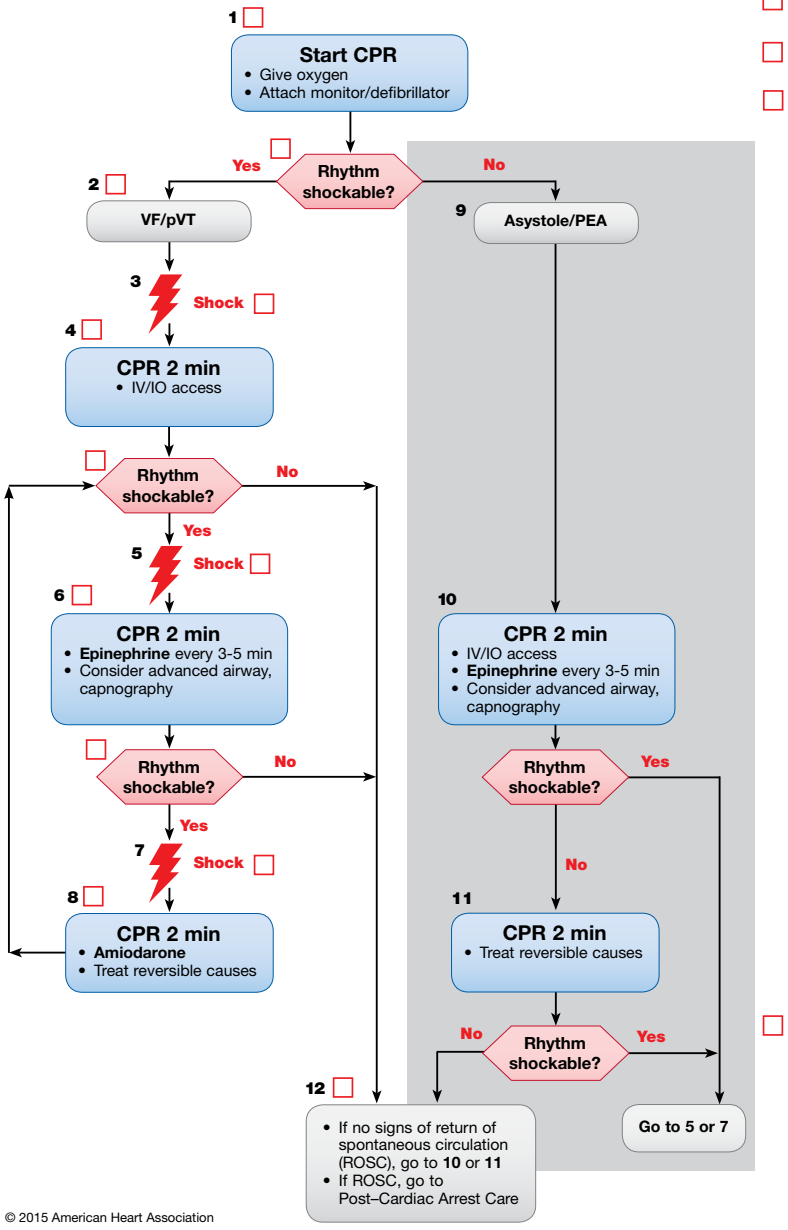
**Lead-in:** A 65-year-old woman who was admitted with chest pain is now found to be unresponsive and with agonal respirations.

## Case Development

| | |
|---|---|
| **Initial Information** | A 65-year-old woman who has a history of hypercholesteremia and hypertension presented with shortness of breath and chest discomfort. About 6 hours after admission, she is found to be unresponsive with agonal respirations by a nurse, who calls you to the bedside. What are your actions? |
| **Additional Information** | Initial actions including calling for help (call a "code"), starting CPR, and attaching the defibrillator.<br>Additional responders will be present after calling for help and can delegate tasks.<br>You call a code while asking the nurse for the defibrillator to be attached and simultaneously having other responders begin chest compressions and ventilation with a bag-mask device. What are the next actions?<br>An ECG reveals **VF**.<br>A shock should be given immediately after charging. Compressions should be resumed while charging.<br>What are your next actions? |
| **Additional Information (if needed)** | The patient is defibrillated a second time for VF, and chest compressions are resumed. What are your next actions? |

# Cardiac Arrest VF/pVT Learning Station Checklist

**Adult Cardiac Arrest Algorithm—2015 Update**






**CPR Quality**

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

**Drug Therapy**

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

**Advanced Airway**

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

**Return of Spontaneous Circulation (ROSC)**

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
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- **H**ypothermia
- **T**ension pneumothorax
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# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

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# Case 37
# Scenario Location: In-Hospital—Obstetrics
# Scenario Topic: Cardiac Arrest (VF/pVT)

## Scenario Rating: 3

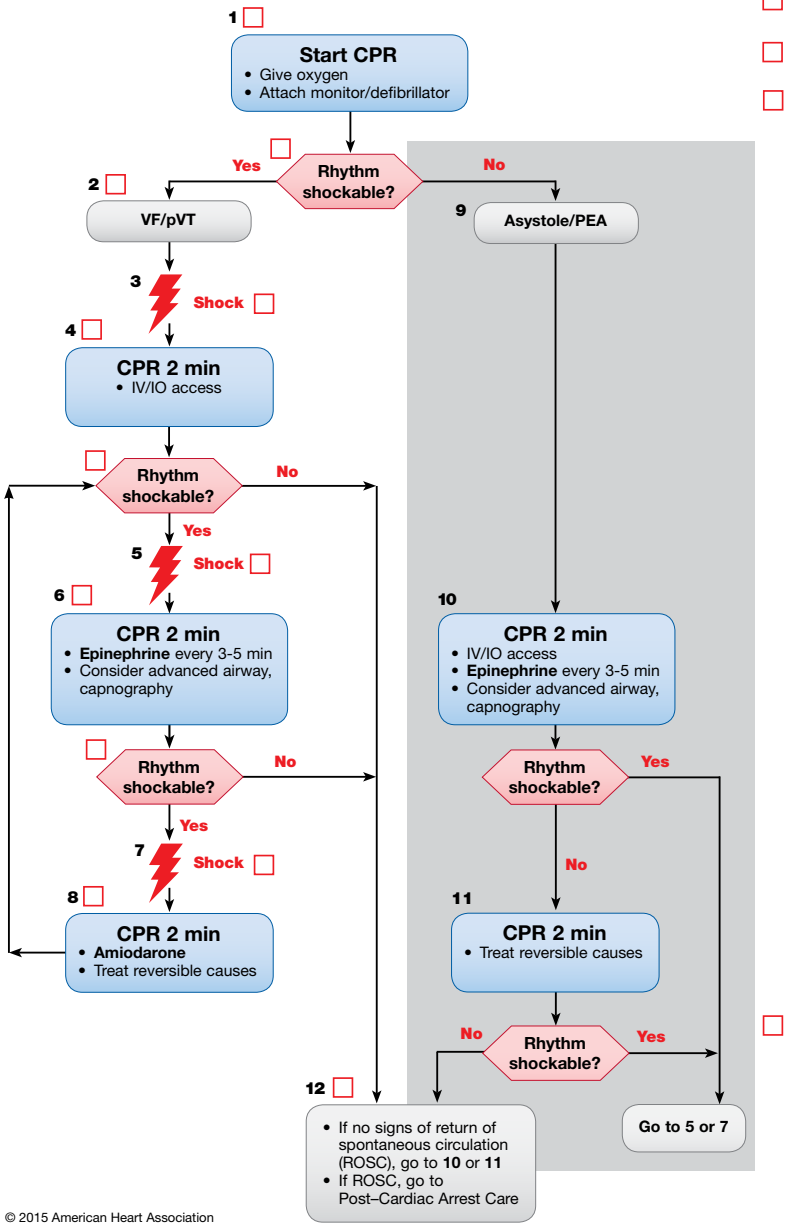
**Lead-in:** You are an emergency physician who is called to the obstetrics floor for a 29-yea -old woman who is pregnant at 36 weeks and in full cardiac arrest.

## Case Development

| | |
|---|---|
| **Initial Information** | When you walk in the room, you see an obviously gravid woman who is being bag-mask ventilated by the respiratory therapist, chest compressions are being performed by nurses, and the patient has an IV with magnesium drip running. What are your initial actions? |
| **Additional Information** | After the patient is placed on the cardiac monitor, she is found to be in VF.<br><br>The patient remains in VF, emergency cesarean and NICU teams arrive within 3 minutes, and the OB/GYN physician performs an emergency cesarean delivery and delivers the infant while chest compressions are continued. The infant is warmed, stimulated, and attended to by the NICU team. The infant begins crying after stimulation.<br><br>After 2 minutes of chest compressions, the patient remains in VF. What are your next actions? |
| **Additional Information (if needed)** | Stopping the magnesium drip and removing the IV tubing from the IV port, administering epinephrine, administering calcium, obtaining a second large-bore IV or IO access, and the emergency cesarean delivery should be considered at 4 minutes of arrest. Once the cesarean delivery is performed, because the patient remains in VF, the patient should be defibrillated. |

## Cardiac Arrest VF/pVT Learning Station Checklist

### Adult Cardiac Arrest Algorithm—2015 Update



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- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

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- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
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# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

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- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 38
# Scenario Location: In-Hospital—ICU
# Scenario Topic: Cardiac Arrest (PEA)

## Scenario Rating: 2

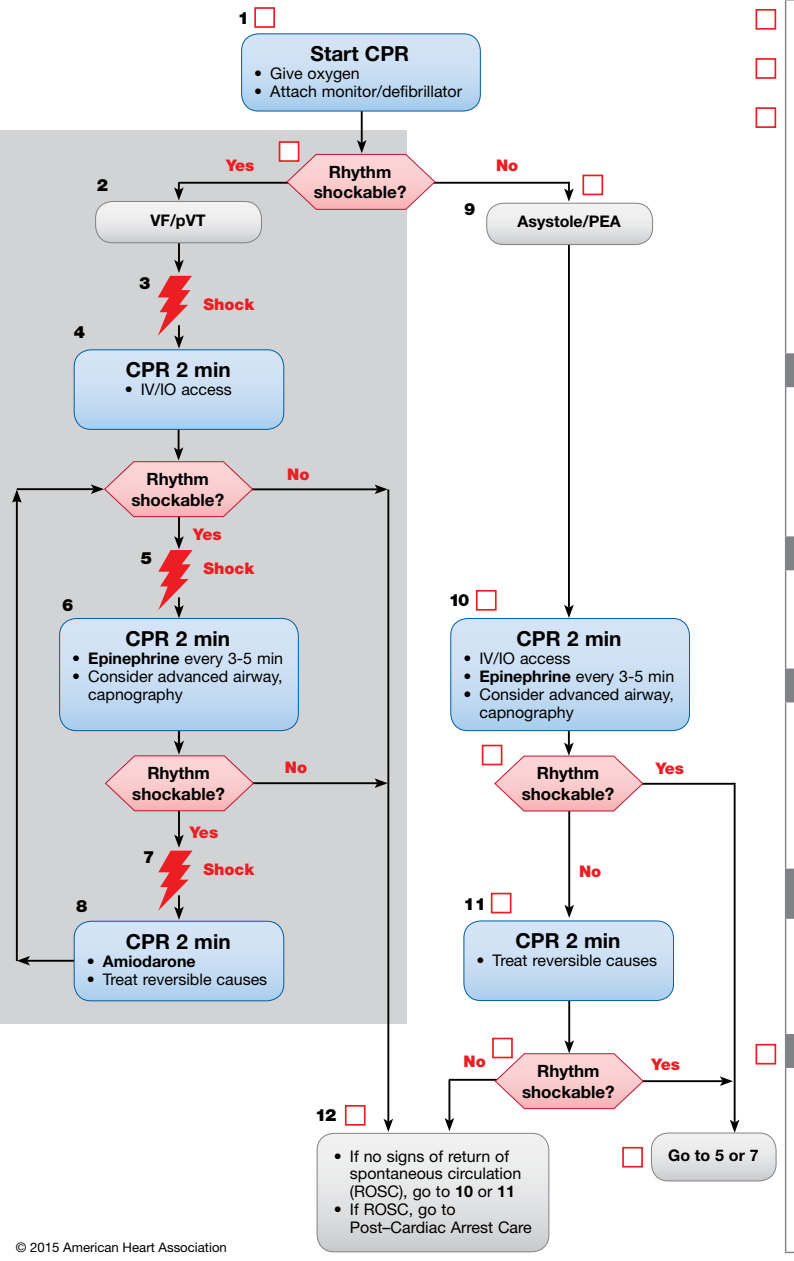
**Lead-in:** An 80-year-old man is admitted to the ICU with pneumonia/respiratory failure and is intubated and sedated. He is undergoing routine nursing care when he suddenly decompensates.

## Case Development

| | |
|---|---|
| **Initial Information** | While undergoing routine nursing care, the patient is noted to suddenly develop **bradycardia**, and the arterial line tracing goes flat, indicating loss of blood pressure/pulse. What are your actions? |
| **Additional Information** | Call a code and begin chest compressions and bag-mask ventilation.<br><br>The patient is in **PEA**. What are your next actions?<br><br>The patient has had a PEA arrest from dislodgement of the endotracheal tube (this need to be discovered by the student by seeking underlying and potentially reversible causes). Hints can be provided by stating that the patient is hard to ventilate.<br><br>Errors will include prolonged arrest management (repeated doses of epinephrine, chest compressions) without recognizing the malpositioned endotracheal tube. In addition, students may choose to perform bilateral needle decompressions and/or chest tubes, believing the patient has a pneumothorax. If this occurs, they should be told after the case that pneumothorax is usually unilateral and that the most likely cause of bilateral absent breath sounds and difficult ventilation is likely a malpositioned tube.<br><br>End-tidal $CO_2$ would not register if used, and this could help identify the loss of airway as well. Pulse oximetry would not be registering a good pleth or saturation. |

# Cardiac Arrest Asystole/PEA Learning Station Checklist

### Adult Cardiac Arrest Algorithm—2015 Update






**CPR Quality**

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

**Drug Therapy**

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

**Advanced Airway**

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

**Return of Spontaneous Circulation (ROSC)**

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 39
# Scenario Location: In-Hospital—Postsurgery
# Scenario Topic: Cardiac Arrest (Asystole)

## Scenario Rating: 3

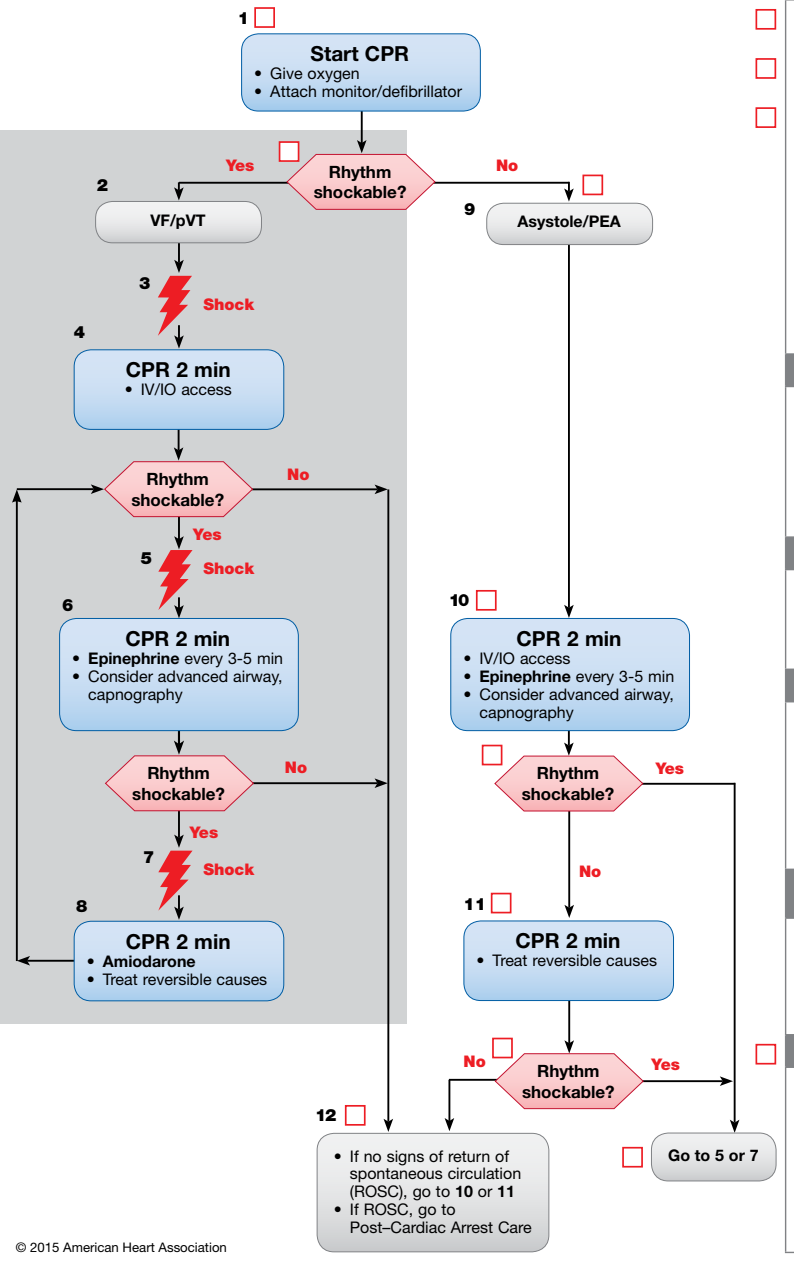
**Lead-in:** A 55-year-old man is postoperative day 4 from coronary artery bypass graft surgery. He is found to be unresponsive by his nurse, and a code is called.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is unresponsive, apneic, and pulseless. What are your actions? |
| **Additional Information** | The patient is hooked up to the monitor. The initial rhythm on the monitor is asystole, confirmed in 2 leads. Chest compressions are started, and bag-mask ventilation is initiated. What are your next actions?<br><br>This patient has an underlying pericardial tamponade, which is 1 of the T's that can cause asystole. The risk factor is the recent coronary artery bypass graft surgery. If the student asks for an ultrasound at the bedside, a large pericardial effusion will be present. The scenario will end when a pericardiocentesis is performed and/or the cardiothoracic surgeon is asked to perform a thoracotomy after the pericardial tamponade is identified. |

# Cardiac Arrest Asystole/PEA Learning Station Checklist

### Adult Cardiac Arrest Algorithm—2015 Update






**CPR Quality**

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If $P_{ETCO_2}$ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

**Shock Energy for Defibrillation**

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

**Drug Therapy**

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

**Advanced Airway**

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

**Return of Spontaneous Circulation (ROSC)**

- Pulse and blood pressure
- Abrupt sustained increase in $P_{ETCO_2}$ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario: Cardiac Arrest (VF/pVT/Asystole/PEA)**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
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- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
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| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 40
# Scenario Location: Out-of-Hospital
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 2

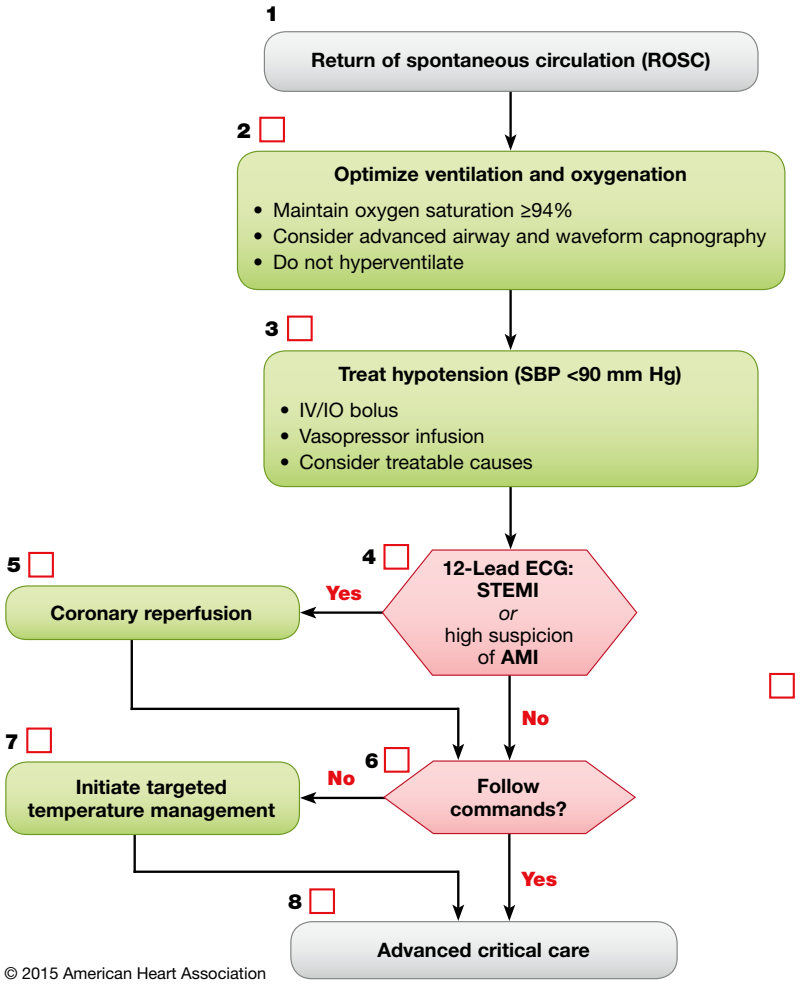
**Lead-in:** You are a paramedic returning with 3 coworkers from an EMS conference. During the flight, a middle-aged man went in to cardiac arrest 4 seats up from you.

## Case Development

| | |
|---|---|
| **Initial Information** | High-quality CPR is in progress, and you just shocked the patient with an AED. In addition to the AED, you also have emergency medical kit.<br>With appropriate cardiac arrest care, on the third analysis, the patient has ROSC with palpable carotid pulses, weak radial pulses, and an initial blood pressure of 84/38 mm Hg. What are your actions? |
| **Additional Information** | The patient received 1 dose of epinephrine before ROSC. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $Spo_2$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
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| Action | Gather | Analyze | Summarize |
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| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 41
# Scenario Location: Out-of-Hospital—Outpatient Clinic
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 2

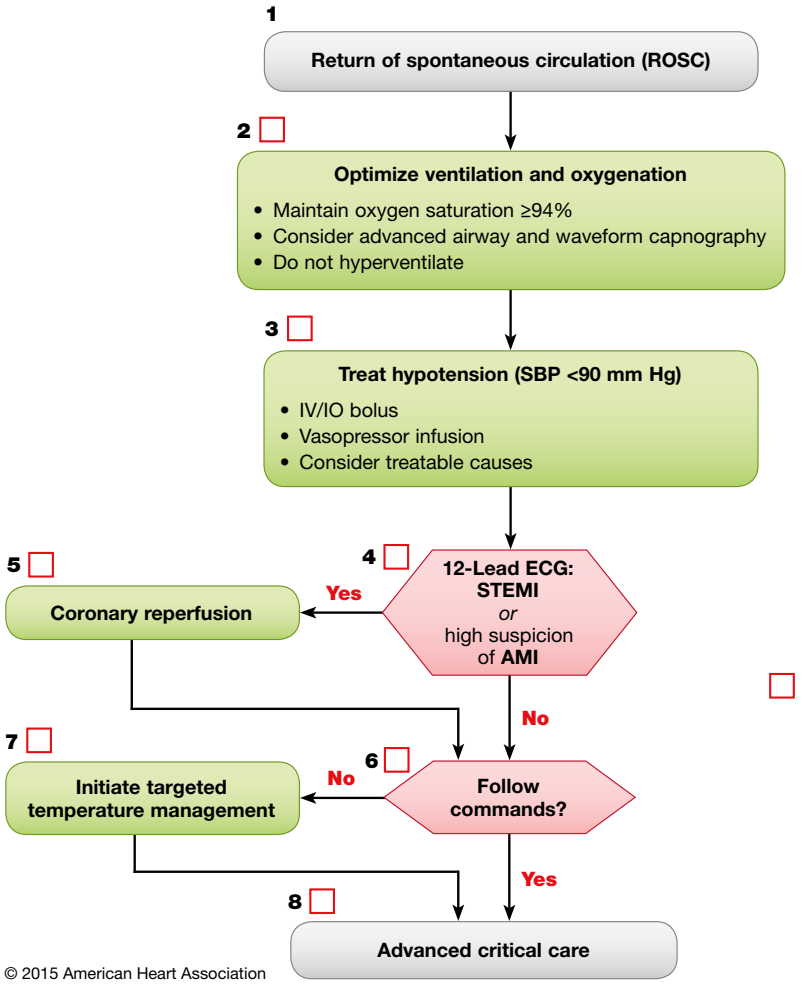
**Lead-in:** You are a paramedic responding to an outpatient methadone clinic for a patient who is not breathing.

## Case Development

| | |
|---|---|
| **Initial Information** | Staff at the clinic tells you that a patient came in for an appointment and became unresponsive in the waiting room. CPR is in progress, and there is an AED that has been applied, but "no shock" was advised. You have established an IV and administered a vasopressor. The airway was secured with an advanced airway.<br><br>After 4 minutes of high-quality CPR, the patient is found to have a weak pulse and a blood pressure of 82/53 mm Hg. A cardiac monitor shows **sinus bradycardia**. What are your initial actions? |
| **Additional Information** | The patient is highly susceptible for narcotic overdose.<br><br>Naloxone may be administered for patients in respiratory arrest, but patients with opioid-associated cardiac arrest are managed in accordance with standard ACLS practices. Naloxone administration in post–cardiac arrest care may be considered to achieve the specific therapeutic goals of reversing the effects of long-acting opioids. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




© 2015 American Heart Association

**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $S_{pO_2}$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
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- **T**ension pneumothorax
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# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

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# Case 42
# Scenario Location: Out-of-Hospital
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 2

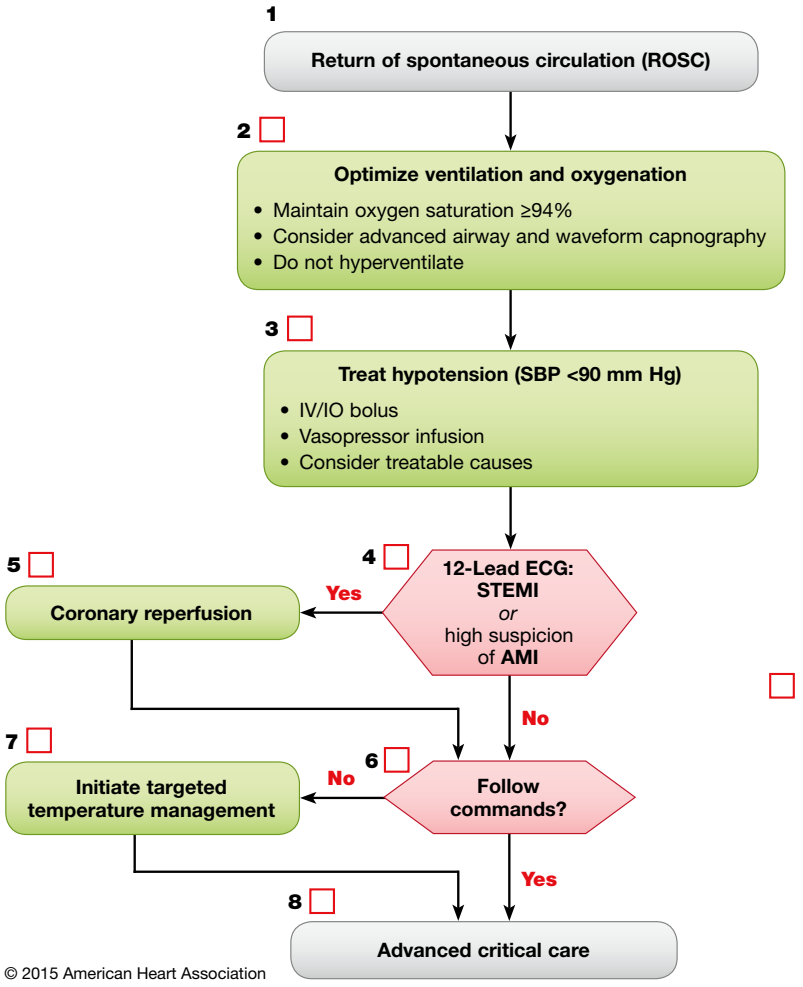
**Lead-in:** You are a paramedic and respond to a home for a patient in her third trimester of pregnancy with CPR in progress.

## Case Development

| | |
|---|---|
| **Initial Information** | After finding the patient in VF, you have administered 1 shock, and high-quality CPR is being continued with a manual left lateral uterine displacement to facilitate venous blood return during CPR. You established an IV and administered a vasopressor. A laryngeal tube is placed.<br><br>After 2 minutes of CPR, you reassess and find that the patient has a perfusing rhythm but is hypotensive. What are your next actions? |
| **Additional Information** | The paramedic is to maintain the patient in the left-lateral position and to administer the appropriate volume of supplementary oxygen and fluids. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




**Doses/Details**

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- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
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- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
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| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 43
# Scenario Location: Out-of-Hospital
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 1

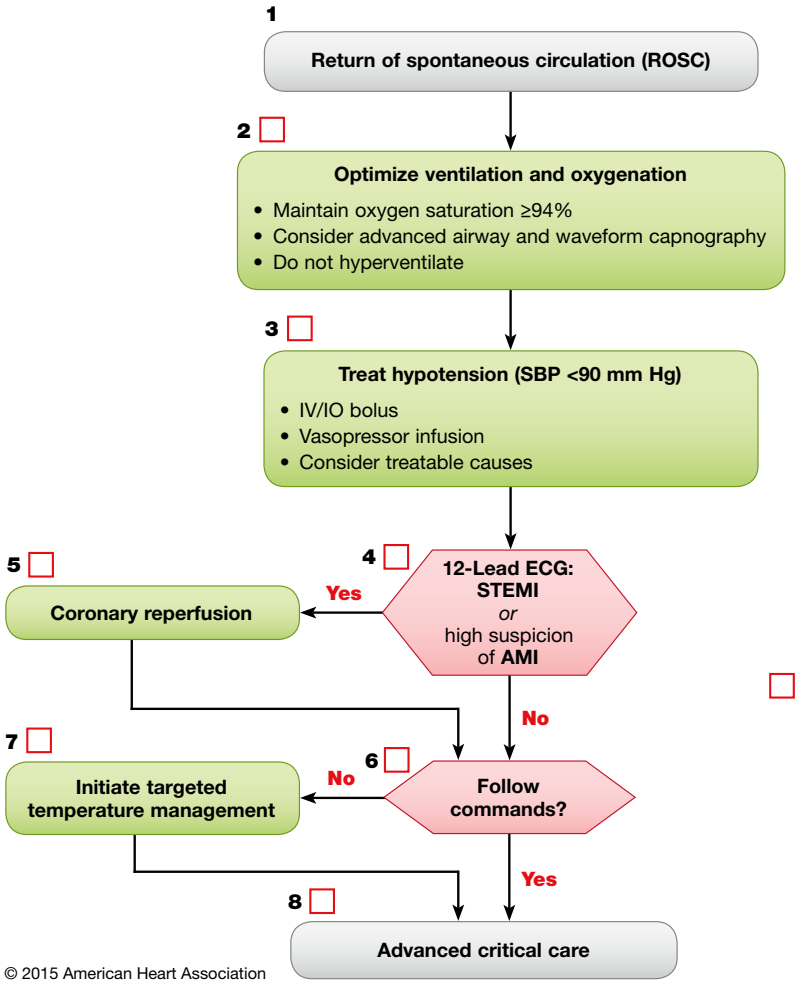
**Lead-in:** You are a paramedic. You arrive on scene, and bystanders are performing CPR on a woman. They report that she suddenly collapsed while she was standing in line to pay for merchandise.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient is cyanotic and unresponsive. Your team takes over, and a cardiac monitor/defibrillator is placed. A rhythm check finds VF and you shock the patient and resume compressions immediately. At the next rhythm check, you find a sinus bradycardia on the monitor. She has a pulse. What are your initial actions? |
| **Additional Information** | The cardiac monitor shows **sinus bradycardia**. She has a blood pressure of 78/54 mm Hg. Her $O_2$ saturation is 95% on 100% $O_2$ through bag-mask ventilations. What are your actions? |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update






**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $Sp_{O_2}$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
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# Case 44
# Scenario Location: Emergency Department
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 1

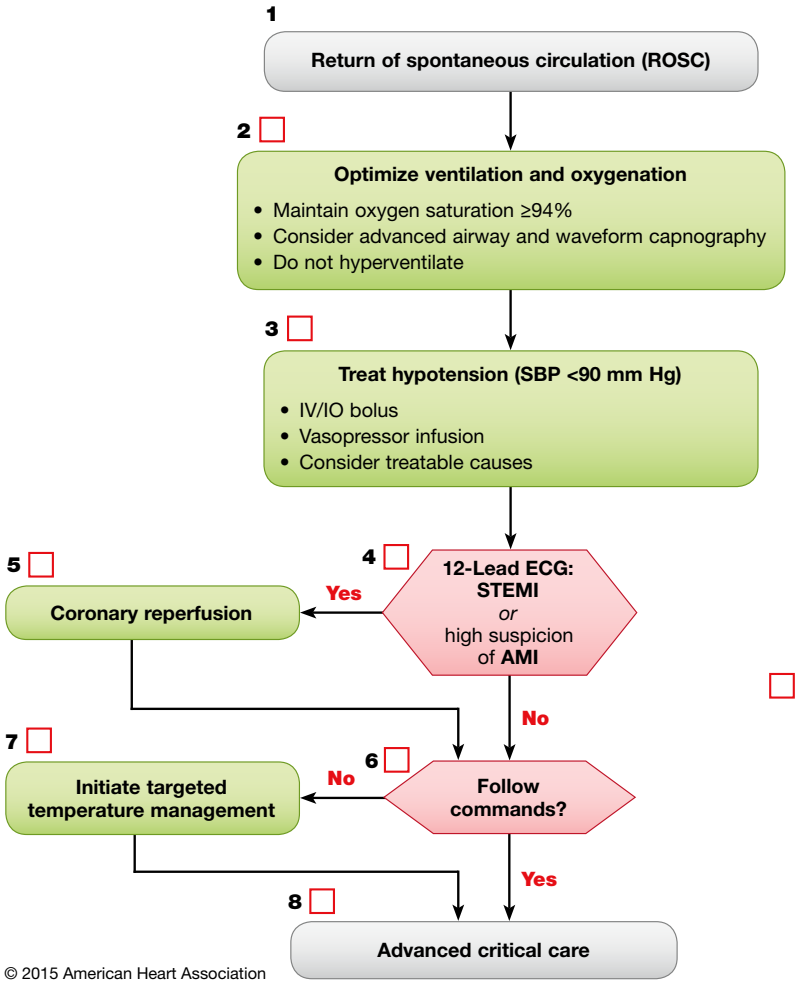
**Lead-in:** You respond to a cardiac arrest in the emergency department registration area. A patient, brought in by car, collapsed while reporting chest discomfort. The triage personnel have initiated CPR.

## Case Development

| | |
|---|---|
| **Initial Information** | The patient was cyanotic and unresponsive. A cardiac monitor/defibrillator was attached and displayed VF. You have given a shock and resumed CPR. On the next rhythm check, you see sinus tachycardia at 128/min, and you have a pulse. What are your initial actions? |
| **Additional Information** | The cardiac monitor shows **sinus tachycardia**. The patient has a blood pressure of 86/58 mm Hg. $SpO_2$ is 90% on 100% $O_2$ through bag-mask ventilations. What are your actions? |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update






**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $SpO_2$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 45
# Scenario Location: In-Hospital—Cath Lab
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 1

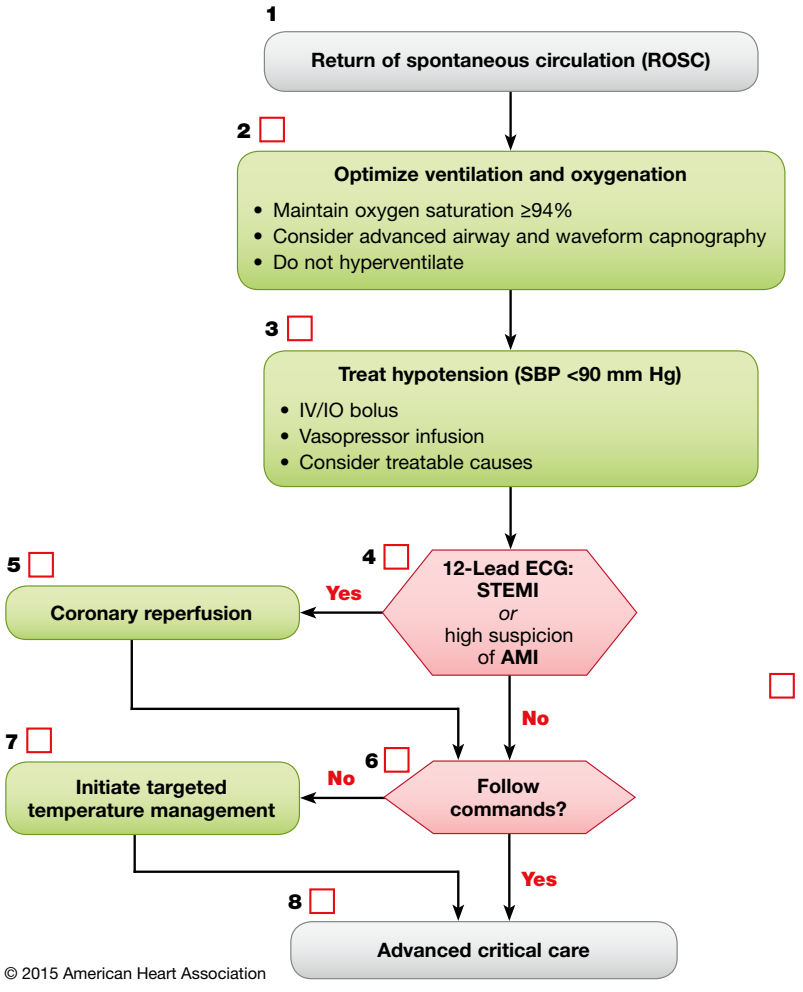
**Lead-in:** A 54-year-old diabetic man is awaiting coronary angiography in the cath lab holding room when he develops sudden-onset crushing chest pain similar to what he had been experiencing the previous week.

## Case Development

| | |
|---|---|
| **Initial Information** | His nurse gives him a sublingual nitroglycerin tablet with prompt relief of symptoms. The nurse puts him on a cardiac monitor and goes down the hall to get the ECG machine. When she returns, he is unresponsive. The monitor now reveals **VF**. After immediate starting of compressions, defibrillation pads are placed, and the patient is shocked. After 5 minutes of high-quality CPR, a rhythm check reveals a normal sinus rhythm at 80/min and a blood pressure of 110/70 mm Hg. What are your initial actions? |
| **Additional Information** | A 12-lead ECG reveals an acute anterior ischemic current of injury. The patient is breathing spontaneously but is unresponsive to a painful command. What are your next actions? |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $Sp_{O_2}$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
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- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 46
# Scenario Location: In-Hospital
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 2

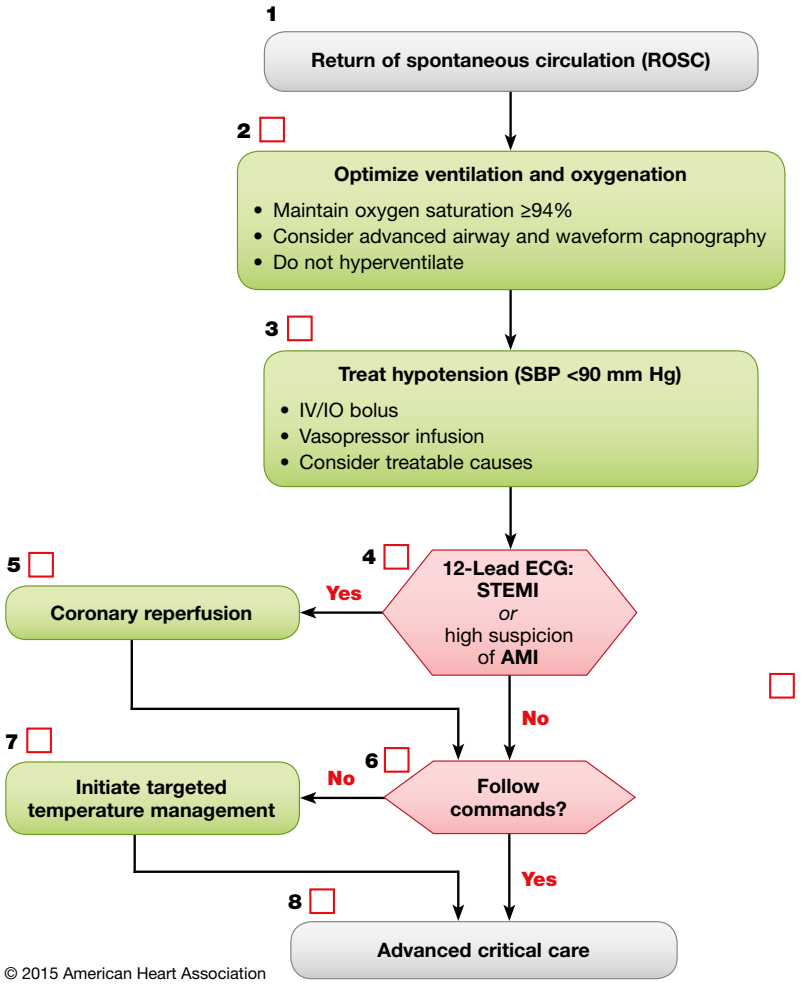
**Lead-in:** A 65-year-old woman who was admitted with chest pain is now found to be unresponsive with agonal respirations.

## Case Development

| | |
|---|---|
| **Initial Information** | A 65-year-old woman who has a history of hypercholesteremia and hypertension presented with shortness of breath and chest discomfort. About 6 hours after admission, she is found to be unresponsive with agonal respirations by a nurse, who calls you to the bedside. CPR is started immediately, and a defibrillator is attached, revealing VF. The patient is shocked and compressions resumed. About a minute into the compressions, the patient is moving her arms. What are your initial actions? |
| **Additional Information** | You stop compressions and check the monitor. You see an organized rhythm and perform a pulse check. You confirm the presence of a carotid pulse. The patient is moving her arms but not following commands and is obtunded. She is still having trouble breathing.<br><br>Key actions will be preparing to intubate the patient and checking blood pressure immediately after identifying ROSC. Errors would be providing epinephrine and/or amiodarone as these interventions should not be considered until after 2 shocks. |
| **Additional Information (if needed)** | The patient's blood pressure is 88/60 mm Hg and she is obtunded. You provide the patient with a fluid bolus, prepare vasopressors in case they are needed, and prepare to intubate the patient. The blood pressure increases with the fluid bolus, and the patient is intubated without complications.<br><br>Key actions include obtaining a blood pressure and recognizing the need for a fluid bolus because of hypotension, particularly in light of the impending intubation. A 12-lead ECG should be obtained as soon as possible. Because the patient is not following commands, she should be considered a candidate for targeted temperature management. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $P_{ETCO_2}$ of 35-40 mm Hg. When feasible, titrate $F_{IO_2}$ to minimum necessary to achieve $Sp_{O_2}$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
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- Summarize take-home messages at the end of the debriefing.
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| Action | Gather | Analyze | Summarize |
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# Case 47
# Scenario Location: In-Hospital
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 2

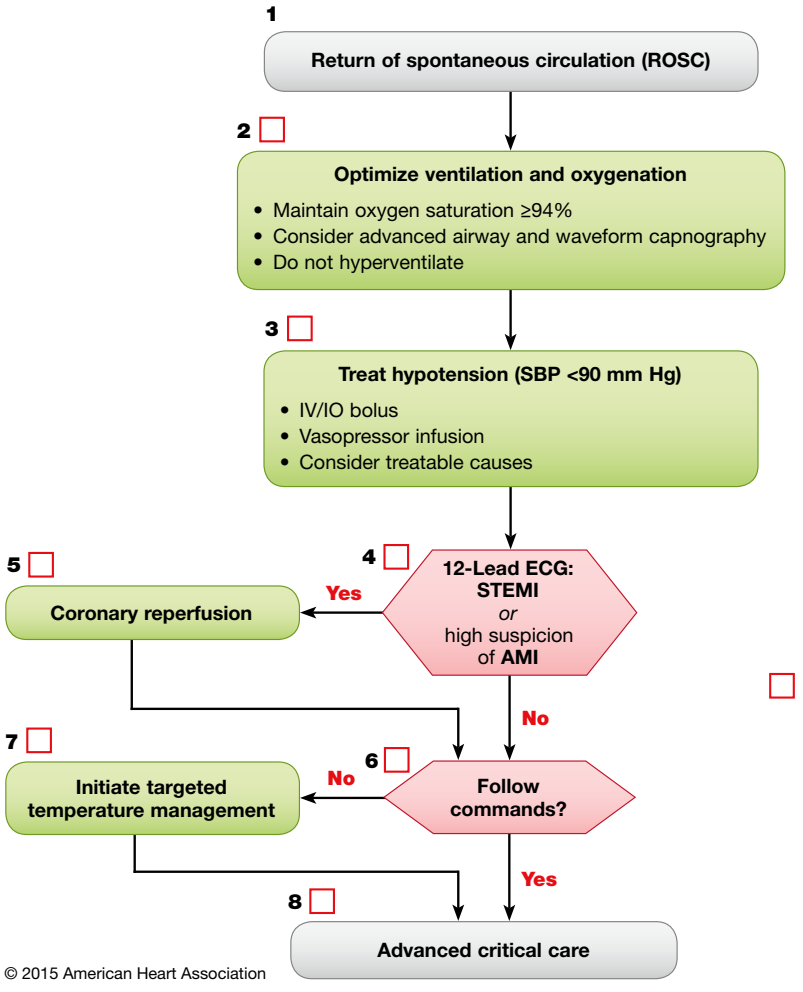
**Lead-in:** You are an emergency physician who is called to the ward for a 29-year-old woman in cardiac arrest.

## Case Development

| | |
|---|---|
| **Initial Information** | When you walk in the room, bag-mask ventilation is being performed by the respiratory therapist, chest compressions are being performed by nurses, and the patient has an IV line.<br>After 2 minutes of chest compressions, the patient remains in VF. The patient regains ROSC after the second defibrillation. CPR is resumed immediately. On the next rhythm check, sinus tachycardia appears on the monitor with a pulse present. What are your initial actions? |
| **Additional Information** | Upon assessment, she is comatose. Her initial vital signs are heart rate 120/min, blood pressure 100/50 mm Hg, and $SpO_2$ with bag-mask device and 100% $FIO_2$ is 98%. What are your next actions? |
| **Additional Information (if needed)** | The patient needs an advanced airway. In-line waveform capnography, if available, should be used to ventilate the patient to maintain $ETCO_2$ 30 to 40 mm Hg. Obtain a 12-lead ECG to screen for STEMI. Initiate targeted temperature management. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update






**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $PETCO_2$ of 35-40 mm Hg. When feasible, titrate $FIO_2$ to minimum necessary to achieve $SpO_2$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
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- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
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## General Debriefing Principles

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# Case 48
# Scenario Location: In-Hospital—ICU
# Scenario Topic: Immediate Post–Cardiac Arrest Care

## Scenario Rating: 1

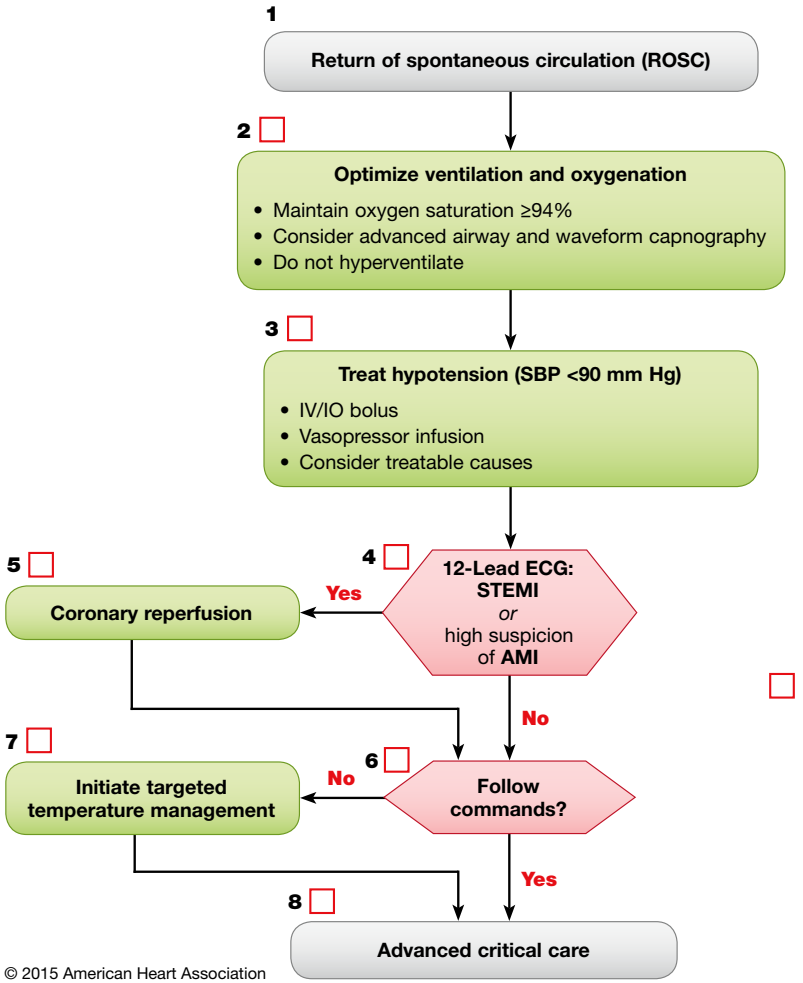
**Lead-in:** An 80-year-old man is admitted to the intensive care unit with pneumonia/respiratory failure and is intubated/sedated. He is undergoing routine nursing care when he suddenly decompensates.

## Case Development

| | |
|---|---|
| **Initial Information** | While undergoing routine nursing care, the patient is noted to suddenly develop **bradycardia** and the arterial line tracing goes flat, indicating loss of blood pressure/pulse. What are your initial actions?<br><br>You are not getting an $ETCO_2$ reading. Further assessment reveals that the patient has had a **PEA** arrest from dislodgement of the endotracheal tube. A code is called, high-quality CPR is initiated, and the tube dislodgment is corrected.<br><br>After the tube dislodgement is identified and corrected, $ETCO_2$ is at 40 mm Hg, indicating ROSC. |
| **Additional Information** | After ROSC, a 12-lead ECG should be obtained to screen for STEMI. Targeted temperature management should be initiated if the patient does not follow commands. |

# Immediate Post–Cardiac Arrest Care Learning Station Checklist

## Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update




**Doses/Details**

**Ventilation/oxygenation:** Avoid excessive ventilation. Start at 10 breaths/min and titrate to target $PETCO_2$ of 35-40 mm Hg. When feasible, titrate $FIO_2$ to minimum necessary to achieve $SpO_2$ ≥94%.

**IV bolus:** Approximately 1-2 L normal saline or lactated Ringer's

**Epinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Dopamine IV infusion:** 5-10 mcg/kg per minute

**Norepinephrine IV infusion:** 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

**Reversible Causes**

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

# *Debriefing Tool*

**ACLS Sample Scenario:**
**Immediate Post–Cardiac Arrest Care**

## Learning Objectives

- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations***<br>(primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/ Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 49
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Tachycardia (SVT)

## (Unstable Tachycardia → VF → Asystole → PCAC)

## Scenario Rating: 2

**Lead-in:** You are a paramedic and arrive on the scene to find an 82-year-old man in respiratory arrest at a restaurant after allegedly choking on his dinner.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient is cyanotic, warm, and dry. EMS responders are ventilating him and have obtained his vital signs: heart rate 140/min, respiratory rate 0/min, blood pressure 62/P mm Hg, and $SpO_2$ 88%. What are your initial actions?<br>This man had an anoxic event from a choking. The case focus, however, is the sustained apnea. The student should begin to take a history, start an IV, and attach monitor electrodes or pads to the patient. The focus should be recognizing the periarrest state and improving perfusion to prevent cardiac arrest. |
| **Tachycardia Algorithm (SVT)** | The student is presented with apnea. A critical action is noting that the obstruction is resolved because ventilations are able to be administered through the bag-mask ventilation. The anoxic event has caused perfusion changes that put the patient in a periarrest state. The monitor shows a **narrow-complex tachycardia**. The student should recognize that the tachycardia is a symptom of the preceding event and focus his or her efforts on oxygenation and ventilation. |
| **Cardiac Arrest Algorithm (VF)** | The patient suddenly develops VF. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. Now the student Team Leader will assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of epinephrine, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (Asystole)** | The patient is now in asystole. The student continues to monitor high-quality CPR and follows the asystole pathway of the Cardiac Arrest Algorithm. Consider reversible causes. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, the patient has ROSC, and the team initiates the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Case 49
## Tachycardia → VF → Asystole → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **Asystole Management** | |
| Recognizes asystole | |
| Verbalizes potential reversible causes of asystole (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 50
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Tachycardia (VT), Cardioversion

## (Unstable VT → VF → PEA → PCAC)

## Scenario Rating: 2

**Lead-in:** You are a paramedic, and you arrive on the scene to find a 45-year-old man in severe distress with "crushing" chest pain.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient is pale, profuse, and cool. You have obtained his vital signs: his heart rate is impalpable, respiratory rate is 28/min, blood pressure is 64/P mm Hg, and $SpO_2$ is 89%. What are your initial actions?<br>This man is presenting with signs of a severe myocardial infarction. The case focus, however, is the signs of poor perfusion. The student should begin to take a history and attach monitor electrodes or pads to the patient. The patient is in **VT** with a pulse. The focus should be on preparing for immediate synchronized cardioversion. Treatment should not be delayed to accommodate IV and preshock medication. |
| **Tachycardia Algorithm (VT)** | The student is presented with unstable VT with pulses and needs to follow the unstable VT with pulses pathway of the Tachycardia Algorithm. A critical action is noting that synchronized cardioversion is the necessary intervention in this periarrest state. Obtaining a 12-lead ECG or starting an IV will delay the necessary intervention. The student should recognize that the tachycardia is the likely cause of the symptoms and focus his or her efforts on correcting the underlying rhythm. |
| **Cardiac Arrest Algorithm (VF)** | The patient should suddenly develop VF. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. Now the student Team Leader will assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (PEA)** | The patient is now in PEA. The student continues to monitor high-quality CPR and follows the PEA pathway of the Cardiac Arrest Algorithm. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, the patient has ROSC, and the team initiates the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Cases 50/53/58/61/63
## Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 51
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Bradycardia

## (Unstable Bradycardia → pVT → Asystole → PCAC)

## Scenario Rating: 2

**Lead-in:** You are a paramedic and arrive on the scene to find a 57-year-old man presenting with chest pain and lethargy.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient is pale and diaphoretic with cold and clammy skin. You have obtained his vital signs: heart rate 50/min, respiratory rate 20/min, blood pressure 82/P mm Hg, and $SpO_2$ 91%. What are your initial actions?<br>This man is presenting with signs of chest pain that may be caused by either the rhythm or by an underlying cardiac event. The case focus should be initiating treatment to prevent the patient from going into cardiac arrest while determining the rhythm by 12-lead ECG. The student should begin to take a history and attach monitor electrodes or pads to the patient. The patient presents with a **wide-complex bradycardic** rhythm. |
| **Bradycardia Algorithm** | The student is presented with bradycardia and needs to follow the Bradycardia Algorithm. A critical action is obtaining a 12-lead ECG to determine the underlying cause of the rhythm. This patient's 12-lead ECG shows a confirmed inferior wall STEMI. The student should recognize that the preferred means to correct the rhythm is transcutaneous pacing and focus his or her efforts on correcting the underlying rhythm. |
| **Cardiac Arrest Algorithm (pVT)** | The patient should suddenly develop pVT. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. Now, the student Team Leader will assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (Asystole)** | The patient is now in asystole. The student continues to monitor high-quality CPR and follows the asystole pathway of the Cardiac Arrest Algorithm. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, the patient has ROSC, and the team initiates the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Case 51
## Bradycardia → Pulseless VT → Asystole → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Bradycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes symptomatic bradycardia | |
| Administers correct dose of atropine | |
| Prepares for second-line treatment | |
| **Pulseless VT Management** | |
| Recognizes pVT | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **Asystole Management** | |
| Recognizes asystole | |
| Verbalizes potential reversible causes of asystole (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 52
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—STEMI/Unstable Bradycardia

## (Unstable Bradycardia → pVT → PEA → PCAC)

### Scenario Rating: 3

**Lead-in:** You are a paramedic, on the ambulance with your EMT partner. It is a Sunday morning, and you are dispatched to a local place of worship to help a 60-year-old woman who has an altered level of consciousness.

### Case Development

| | |
|---|---|
| **Initial Assessment** | You arrive at the scene to find a fire engine already on scene, and 2 firefighters are waiting to assist with equipment. One of the firefighters says that the patient is hard to arouse and she looks really sick. You arrive at the patient, who is lying supine on a bench with several parishioners nearby. She opens her eyes to loud voices but appears very confused. Witnesses state that she just slumped over while attending church without warning. What are your initial actions?<br><br>The patient has no respiratory distress, her skin is cold and clammy, and her lungs are clear. Her radial pulse is weak with a rate of 40/min, blood pressure is 80/46 mm Hg, and $SpO_2$ is 94% on room air.<br><br>While you are acquiring a 12-lead ECG, family members state that she has a history of non–insulin-dependent diabetes mellitus and gastroesophageal reflux disease and a family history of cardiac problems. The 12-lead ECG shows a **sinus bradycardia** at 40/min, with ST elevation in leads III and AVF, and V4R shows ST elevation as well. |
| **Bradycardia Algorithm** | The Team Leader should recognize the bradycardia as symptomatic and verbalize the need for atropine.<br><br>While you are initiating an IV, the patient starts having agonal respirations and goes unresponsive. She is now pulseless, and the limb leads **show monomorphic VT**. |
| **Cardiac Arrest Algorithm (Pulseless VT)** | After high-quality CPR, 3 shocks, placement of an advanced airway, a dose of epinephrine, and 300 mg amiodarone, the monitor shows a rhythm consistent with the one originally noted (sinus bradycardia with ST elevation in III) before arrest occurred, but no pulse is present (PEA). |
| **Cardiac Arrest Algorithm (PEA)** | After another minute of CPR, the quantitative capnography reading goes from 18 mm Hg to 55 mm Hg. A rhythm and pulse check reveals that the patient has ROSC. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | Further assessment after ROSC reveals that the patient has a Glasgow Coma Scale score of 3, she is apneic, and ventilations are being assisted through an advanced airway with a capnography reading of 44 mm Hg. Her blood pressure is 88/50 mm Hg, and her finger-stick glucose is 285 mg/dL (15.8 mmol/L). The nearest hospital is 12 minutes from the scene, and a cardiac arrest receiving center is 30 minutes from the scene. |

## Megacode Practice Learning Station Checklist: Cases 52/55
## Bradycardia → Pulseless VT → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Bradycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes symptomatic bradycardia | |
| Administers correct dose of atropine | |
| Prepares for second-line treatment | |
| **Pulseless VT Management** | |
| Recognizes pVT | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 53
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Ventricular Tachycardia

## (Unstable Tachycardia → VF → PEA → PCAC)

### Scenario Rating: 2

**Lead-in:** You are the paramedic on an advanced life support (ALS) engine with 3 EMTs. An ALS ambulance has also been dispatched to a 48-year-old man with chest discomfort. You arrive to a single-story residence where 2 family members are trying to assist a man who is clutching his chest.

### Case Development

| | |
|---|---|
| **Initial Assessment** | The patient's wife says, "What could possibly be going on? He had 2 stents placed 2 days ago." They are on the front porch of the residence, the scene is safe, and the ambulance is estimated to arrive in 3 minutes. What are your initial actions?<br><br>The patient is sitting up on a lawn chair, awake and oriented, and in obvious distress. He is breathing with normal effort, has a weak radial pulse that is too fast to count, and his blood pressure is 80/60 mm Hg. His $SpO_2$ is 96% on room air. The ECG monitor with limb leads shows **monomorphic wide-complex tachycardia** at 170/min. Your coworkers are acquiring a 12-lead ECG as you prepare for treatment. |
| **Tachycardia Algorithm** | The student should order the crew to administer oxygen as you attempt IV access and prepare for emergent cardioversion.<br><br>Before cardioversion, the patient goes unresponsive, and there is a rhythm change to **VF**. |
| **Cardiac Arrest Algorithm (VF)** | CPR should be initiated immediately after assessing for cardiac arrest. Immediate defibrillation is carried out and CPR is initiated. After 2 minutes, another rhythm check (still VF) is performed, then defibrillation, and then CPR resumed. During this 2-minute cycle, the IV is in place and epinephrine is administered. At the end of this 2-minute cycle, another rhythm check is done (still VF) and another shock is given. CPR is resumed, and an advanced airway is placed with a capnography reading of 18 mm Hg being displayed. Amiodarone 300 mg is administered. After 2 minutes, another rhythm check is done (still VF), then another shock, and then more CPR is given. After this cycle, another rhythm check shows an **organized wide-complex rhythm** at a rate of 50/min, but no pulse is present. |
| **Cardiac Arrest Algorithm (PEA)** | CPR continues, with another dose of epinephrine being administered. During this cycle, the team should consider potential causes of the arrest. After 90 seconds of CPR, the capnography reading spikes to 65 mm Hg. CPR is interrupted for a rhythm and then pulse check, and strong pulses are detected at the carotid and radial areas. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The patient has pulses but has no effort to breathe. Ventilations should continue at 10/min or guided by capnography (reading currently 52 mm Hg). Blood pressure is 86/56 mm Hg. A finger-stick glucose test is performed with a reading of 140 mg/dL (7.8 mmol/L). The patient does not respond to any stimuli. The nearest emergency department is 7 minutes from the scene, and a cardiac arrest receiving facility is 18 minutes from the scene. |

## Megacode Practice Learning Station Checklist: Cases 50/53/58/61/63
## Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 54
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Tachycardia

**(Unstable Tachycardia → VF → Asystole → PCAC)**

## Scenario Rating: 2

**Lead-in:** You are a paramedic treating a 63-year-old woman who collapsed after reporting nausea and dizziness. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient is lying on the floor. The patient is cyanotic and taking agonal respirations. What are your initial actions?<br>First responders are assembling the bag-mask device when you walk into the room. The student should ensure that the patient is being properly ventilated by first responders. The student can choose to continue ventilation with the bag-mask device or insert an advanced airway. Advanced airway insertion will require the use of waveform capnography. The student should start an IV and attach monitor electrodes or pads to the patient. The ECG is **sinus tachycardia with multiple PVCs**. |
| **Tachycardia Algorithm** | The patient suddenly develops a **wide-complex tachycardia**. The radial pulse disappears; however, the student can still feel a carotid pulse. The student should deliver immediate electrical cardioversion. Blood pressure is 78/56 mm Hg. Consideration of drug therapy should not delay cardioversion. |
| **Cardiac Arrest Algorithm (VF)** | After a single cardioversion attempt, the patient develops **VF**. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. The student should assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of epinephrine, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (Asystole)** | Before the student can administer an anti-arrhythmic drug, the patient develops asystole. The student continues to monitor high-quality CPR and follows the asystole pathway of the Cardiac Arrest Algorithm. The student should consider the H's and T's. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | After the second dose of epinephrine, the ECG displays an organized rhythm. The rate increases, and the patient has ROSC. The student should initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Case 54
## Tachycardia → VF → Asystole → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to tachycardia | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **Asystole Management** | |
| Recognizes asystole | |
| Verbalizes potential reversible causes of asystole (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 55
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Bradycardia

**(Unstable Bradycardia → pVT → PEA → PCAC)**

**Scenario Rating: 3**

**Lead-in:** You are a paramedic treating a 54-year-old man with chest pain. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Assessment** | What are your initial actions? This student begins with the Acute Coronary Syndrome Algorithm. The patient's pulse is 120/min, respirations are 18/min, and blood pressure is 110/50 mm Hg. Oxygen saturation is 90% on room air. The 12-lead ECG shows evidence of an anterior-wall STEMI. The student should begin to take a history, start an IV, and administer aspirin. Shortly after the student administers nitroglycerin, the patient loses consciousness. |
| **Bradycardia Algorithm** | The ECG displays **sinus bradycardia** at a rate of 40/min. There is no radial pulse, but the student can still feel a carotid pulse. The student should follow the Bradycardia Algorithm and be prepared to administer a single dose of atropine while preparing for transcutaneous pacing. |
| **Cardiac Arrest Algorithm (Pulseless VT)** | Before the student can begin transcutaneous pacing, the patient develops **VF**. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. The student should assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (PEA)** | After the administration of the vasopressor, the patient develops an **organized rhythm that is slow**. There is no pulse. The patient is now in PEA. The student continues to monitor high-quality CPR and follows the PEA pathway of the Cardiac Arrest Algorithm. The student should consider the H's and T's. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | After verifying that the patient is being adequately ventilated, the heart rate increases and the student can now detect a carotid pulse. The patient has ROSC. The student should initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

# Megacode Practice Learning Station Checklist: Cases 52/55
# Bradycardia → Pulseless VT → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Bradycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes symptomatic bradycardia | |
| Administers correct dose of atropine | |
| Prepares for second-line treatment | |
| **Pulseless VT Management** | |
| Recognizes pVT | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 56
# Scenario Location: Out-of-Hospital
# Scenario Topic: Megacode Practice—Unstable Tachycardia (SVT)

**(Unstable Tachycardia → pVT → PEA → PCAC)**

## Scenario Rating: 2

**Lead-in:** You are a paramedic treating a 57-year-old man with an altered mental status. The scene is safe.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient was working in the yard and told his wife he was feeling dizzy. He sat on the porch and soon had noticeable mental status changes. What are your initial actions?<br>Both radial and brachial pulses are too weak to reliably count, respirations are 22/min, and initial blood pressure is 80 mm Hg palpated. |
| **Tachycardia Algorithm** | The ECG shows **atrial fibrillation with multiple PVCs**. The student should follow the Tachycardia Algorithm. The student should begin to take a history, start an IV, and prepare sedation for cardioversion. |
| **Cardiac Arrest Algorithm (Pulseless VT)** | Before the student can administer the sedation, the patient loses consciousness. The ECG displays **VT**. There is no pulse. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. The student should assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of epinephrine, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (PEA)** | After the administration of the vasopressor, the patient develops an **organized rhythm that is fast**. There is no pulse. The patient is now in PEA. The student continues to monitor high-quality CPR and follows the PEA pathway of the Cardiac Arrest Algorithm. The student should consider the H's and T's. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | After administering a fluid bolus, the student can now detect a carotid pulse. The patient has ROSC. The student should initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Cases 56/59
## Tachycardia → Pulseless VT → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to tachycardia | |
| Performs immediate synchronized cardioversion | |
| **Pulseless VT Management** | |
| Recognizes pulseless VT | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 57
# Scenario Location: Emergency Department
# Scenario Topic: Megacode Practice—Unstable Bradycardia

## (Unstable Bradycardia → VF → Asystole → PCAC)

## Scenario Rating: 2

**Lead-in:** You receive a 5-minute notification of an inbound 75-yea - old woman reporting nausea and vomiting, abdominal pain, and a low blood pressure. By report, the patient is placed on oxygen and vital signs are obtained: heart rate 43/min, respiratory rate 14/min, blood pressure 70 mmHg/palp., and $SpO_2$ 95% on 100% $O_2$.

## Case Development

| | |
|---|---|
| **Initial Assessment** | What are your initial actions upon arrival?<br>The initial differential diagnosis is broad: acute coronary syndrome, abdominal aortic aneurysm and sepsis syndrome. The initial focus will be the bradycardia. A history is obtained that indicates hypertension, hyperlipidemia, and previous NSTEMI with stents × 2. Symptoms begin just before the EMS call. An IV is started and the patient is placed on a monitor with pacer pads. Her vital signs are similar to her prehospital vital signs. The ECG shows a **second-degree type I AV block**. |
| **Bradycardia Algorithm** | The student should recognize unstable bradycardia and follow the Bradycardia Algorithm. The critical action is to note the abnormal heart rate *and* hypotension. The bradycardia is narrow-complex without ST changes. The patient is unstable and given IV atropine (0.5 mg) twice without change in heart rate or blood pressure. While the dopamine infusion is being prepared, the patient becomes unresponsive. What is the next action? |
| **Cardiac Arrest Algorithm (VF)** | The monitor demonstrates **VF**. The patient has no pulse. CPR is started. The VF/pVT pathway should be followed. The patient is shocked twice. Epinephrine is given. An advanced airway is obtained. During rhythm check, the monitor demonstrates **asystole**. No pulse or spontaneous respirations are confirmed. |
| **Cardiac Arrest Algorithm (Asystole)** | CPR is continued. Ventilations at 100% $O_2$ continue. Another dose of epinephrine is given. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, waveform capnography jumps to 52 mm Hg, and compressions are held for a rhythm and pulse check that reveals a sinus tachycardia at 126/min. Initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Cases 57/60
## Bradycardia → VF → Asystole → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Bradycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes symptomatic bradycardia | |
| Administers correct dose of atropine | |
| Prepares for second-line treatment | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **Asystole Management** | |
| Recognizes asystole | |
| Verbalizes potential reversible causes of asystole (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 58
# Scenario Location: Emergency Department
# Scenario Topic: Megacode Practice—Unstable Ventricular Tachycardia

## (Unstable Tachycardia → VF → PEA → PCAC)

### Scenario Rating: 2

**Lead-in:** You are an emergency department care provider. A 64-year-old man presents to the emergency room with chest pressure, shortness of breath, light-headedness, and palpitations.

### Case Development

| | |
|---|---|
| **Initial Assessment** | A 64-year-old man is in the acute care area of the emergency department. On initial assessment, he appears uncomfortable, pale, and diaphoretic. The carotid pulse is barely palpable. What are your initial actions?<br><br>His initial vital signs: heart rate is 130/min, respiratory rate is 24/min, blood pressure is unable to be obtained, temperature is 36.9°C, $SpO_2$ is 78% (poor waveform), and finger-stick glucose is 56 mg/dL (3.1 mmol/L). His weight is 80 kg. The rhythm on the monitor shows **VT**.<br><br>The palpitations started abruptly approximately 30 minutes ago. There is no sensation of presyncope of dyspnea. He feels well other than his heart, which is racing. He had experienced 1 hour of central chest discomfort that worsened with exertion before the palpitations began. There has been no antecedent illness. A review of systems is otherwise normal.<br><br>The patient has a past medical history of hypertension, and he is a former smoker. His medications are metoprolol 25 mg by mouth once daily for years, and aspirin 81 mg by mouth once daily for years. He has no allergies. His lab data showed normal electrolytes and elevated creatine kinase and troponin I. His imaging **(provided if requested)** showed a normal chest x-ray. An ECG showed monomorphic VT. |
| **Tachycardia Algorithm (VT)** | The student should follow the Tachycardia Algorithm. The teaching point for synchronized cardioversion is ensuring that the defibrillator/monitor is tracking the QRS and not the T-waves before synchronized cardioversion. If the monitor is tracking incorrectly, there is a danger in causing an R-on-T phenomenon. Change leads to maximize the ratio of QRS to T-wave amplitude to address this problem.<br><br>Focus on good team communication, safe cardioversion, adequate monitoring, and IV access.<br><br>The sedation technique for the cardioversion could be included. |
| **Cardiac Arrest Algorithm (VF)** | The patient should suddenly develop **VF**. The student will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. Now, the student Team Leader will assign team functions and monitor for high-quality CPR. The case should continue through safe defibrillation, administration of a vasopressor, and consideration of an anti-arrhythmic drug. |
| **Cardiac Arrest Algorithm (PEA)** | The patient is now in PEA. The student continues to monitor high-quality CPR and follows the PEA pathway of the Cardiac Arrest Algorithm. Although the patient is likely in cardiogenic shock, the student should state a differential diagnosis of PEA. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, the patient has ROSC, and the team initiates the Immediate Post–Cardiac Arrest Care Algorithm. Give specific attention to the likely cause of the patient's arrhythmia, including acute myocardial infarction. Consider post-arrest ventilation goals, hemodynamic goals, targeted temperature management, and urgent assessment for coronary angiogram. |

## Megacode Practice Learning Station Checklist: Cases 50/53/58/61/63
## Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 59
# Scenario Location: Emergency Department
# Scenario Topic: Megacode Practice—Unstable Ventricular Tachycardia

**(Unstable Tachycardia → pVT → PEA → PCAC)**

## Scenario Rating: 2

**Lead-in:** You are an emergency department care provider. A 75-year-old man, who is in town for a wedding, was outside smoking a cigarette during the reception when he developed sudden-onset palpitations. Moments later, he experienced light-headedness, followed by 2 syncopal episodes, each lasting seconds.

## Case Development

| | |
|---|---|
| **Initial Assessment** | He continues to feel palpitations in the emergency department. On questioning, he admits to drinking heavily for the previous 30 hours. During the interview, the patient becomes progressively more short of breath and light-headed. What are your initial actions?<br>His initial vital signs are heart rate 180/min, respiratory rate 24/min, blood pressure 80/45 mm Hg, $SpO_2$ 92%, and temperature 37°C. |
| **Tachycardia Algorithm** | A rhythm strip shows **atrial fibrillation**.<br>Focus on safe synchronized cardioversion and a discussion about the approach to sedation/analgesia in this scenario. After 2 failed synchronized cardioversions, the patient loses pulses and becomes apneic and unresponsive. The monitor shows **VT**. |
| **Cardiac Arrest Algorithm (Pulseless VT)** | Follow the pVT pathway of the Cardiac Arrest Algorithm. Focus on safe defibrillation, high-quality compressions, and a consideration of differential diagnoses. |
| **Cardiac Arrest Algorithm (PEA)** | After the second defibrillation attempt, the patient's rhythm changes to a **wide-complex regular rhythm** (with P-waves) at 70/min. The patient still has no pulses. The student should follow the PEA pathway of the Cardiac Arrest Algorithm. The student should focus on high-quality chest compressions and may consider an advanced airway and underlying causes, including pulmonary embolism and myocardial infarction hemorrhage among other things. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The team continues high-quality chest compressions, the patient has ROSC, and the team initiates the Immediate Post–Cardiac Arrest Care Algorithm. Give specific attention to the likely cause of the patient's arrhythmia. Consider post-arrest ventilation goals, hemodynamic goals, targeted temperature management, and urgent assessment for coronary angiogram. |

## Megacode Practice Learning Station Checklist: Cases 56/59
## Tachycardia → Pulseless VT → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to tachycardia | |
| Performs immediate synchronized cardioversion | |
| **Pulseless VT Management** | |
| Recognizes pulseless VT | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 60
# Scenario Location: Emergency Department
# Scenario Topic: Megacode Practice—Unstable Bradycardia

**(Unstable Bradycardia → VF → Asystole → PCAC)**

## Scenario Rating: 2

**Lead-in:** EMS is called because a 55-year-old diabetic man developed sudden-onset chest discomfort and diaphoresis while standing in line for movie tickets.

## Case Development

| | |
|---|---|
| **Initial Assessment** | On EMS arrival, the patient is sitting on a bench. He has 8/10 chest pain and his shirt is drenched with sweat. His heart rate is 72/min and his blood pressure is 110/70 mm Hg. His lungs are clear to auscultation. A 12-lead ECG is performed and shows ST elevation in the inferior and ST depression in the anterior precordial leads. EMS transports the patient to your hospital and places him in bed 3. What are your initial actions? |
| **Bradycardia Algorithm** | The patient is placed on a cardiac monitor. He chewed 325 mg of aspirin on scene. His blood pressure is noted to be 70 mm Hg systolic and his monitor (show) reveals sinus bradycardia at 72/min with AV disassociation and evidence of complete heart block (**third-degree AV block**). What do you do next? |
| **Cardiac Arrest Algorithm (VF)** | As you are drawing up atropine, the patient becomes unresponsive. You look at the monitor and (show) it reveals **VF**; prompt defibrillation is performed. The patient returns to SR and is responsive, alert, and oriented. What are your next actions? |
| **Cardiac Arrest Algorithm (Asystole)** | He has another arrest (**VF**). After defibrillation, CPR is initiated; after 2 minutes of CPR, the monitor reveals **asystole**. What do you do next?<br>After giving epinephrine, CPR is continued; there is ROSC. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | The patient is comatose and unresponsive. He is intubated and ventilation is initiated. Follow the Immediate Post–Cardiac Arrest Care Algorithm. |

# Megacode Practice Learning Station Checklist: Cases 57/60
# Bradycardia → VF → Asystole → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Bradycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes symptomatic bradycardia | |
| Administers correct dose of atropine | |
| Prepares for second-line treatment | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **Asystole Management** | |
| Recognizes asystole | |
| Verbalizes potential reversible causes of asystole (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 61
# Scenario Location: In-Hospital
# Scenario Topic: Megacode Practice—Stable/Unstable Tachycardia

**(Stable/Unstable Tachycardia → VF → PEA → PCAC)**

## Scenario Rating: 3

**Lead-in:** You are a medical emergency team member called to urgently assess an 81-year-old woman admitted to the medical floor with pneumonia. Overnight, she was becoming progressively short of breath with increased work of breathing. This morning, the nursing staff found her obtunded in extreme respiratory distress.

## Case Development

| | |
|---|---|
| **Initial Assessment** | The patient was brought to the hospital by EMS for an altered level of consciousness and shortness of breath. She had been feeling unwell for approximately a week with a productive cough. She was admitted from the emergency department with a diagnosis of pneumonia and started on antibiotics. Despite this, her work of breathing has increased overnight, and this morning, her Glasgow Coma Scale score has decreased. What are your initial actions?<br>She is unable to communicate with you due to her level of consciousness. She is in severe respiratory distress with accessory muscle use and labored breathing. She also displays paradoxical respirations. She is on 100% oxygen by nonrebreathing mask.<br>Her past medical history includes hysterectomy, appendectomy, and hypothyroidism. Her medications are levothyroxine and levofloxacin. She has no allergies.<br>Her vital signs are heart rate 138/min normal sinus rhythm, respiratory rate 20/min, blood pressure 92/45 mm Hg, $SpO_2$ 92%, and blood sugar 59 mg/dL (3.3 mmol/L). Her weight is 50 kg.<br>She has no labs available, but a chest x-ray is showing pneumonia, and an ECG shows **sinus tachycardia**. |
| **Tachycardia Algorithm** | During the interview/initial assessment, her level of consciousness continues to decrease, and her respiratory effort slowly decreases to zero. She becomes apneic, and her hypoxia worsens, with $SpO_2$ into the 60s. Her tachycardia increases to 160/min. She maintains pulses and her blood pressure drops to 82/42 mm Hg. What are your next actions? |
| **Cardiac Arrest Algorithm (VF)** | As the student is managing the respiratory arrest (either during bag-mask ventilation or after successful intubation), the patient develops **VF** and loses her pulse. CPR is initiated and pads for defibrillation are placed. The student should defibrillate early. The student should verify the position of the endotracheal tube, if placed, or remove it if it cannot be confirmed (bag-mask device). The VF is resistant to multiple defibrillations, epinephrine, and anti-arrhythmic medications.<br>Focus on high-quality chest compressions, minimizing hands-off time, safe defibrillation technique, and consideration of reversible causes. |
| **Cardiac Arrest Algorithm (PEA)** | Despite adequate management of VF, the patient will develop PEA. The focus of the team should be on high-quality CPR, ongoing epinephrine as indicated, and a verbalization of the differential diagnosis beyond sepsis. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | After 2 rounds of CPR and drugs, the patient will regain pulses. The student will be expected to reassess vital signs and initiate the Immediate Post–Cardiac Arrest Care Algorithm. Discussion points for the advanced learner may include indications and contraindications for targeted temperature management in this patient with sepsis, blood gas management and targets, and general sepsis management (eg, blood pressure/perfusion goals). |

# Megacode Practice Learning Station Checklist: Cases 50/53/58/61/63 Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 62

## Scenario Location: In-Hospital—Intermediate Medical-Surgical Unit

## Scenario Topic: Megacode Practice—Stable Tachycardia

**(Stable Tachycardia → VF → PEA → PCAC)**

### Scenario Rating: 3

**Lead-in:** You are a healthcare provider on an intermediate medical surgical unit making rounds on patients when you hear an overhead page (coded) that an intruder is in the hospital and security is pursuing. One of your patients is a 22-year-old man who was involved in a bar fight, sustaining several life-th eatening injuries. At the same time as the message is delivered, you hear your patient screaming, "I'm dying—I've been shot!" and you see an unfamiliar man run out of the unit.

### Case Development

| | |
|---|---|
| **Initial Assessment** | Upon assessment, you note your patient's heart rate is 130/min, respiratory rate is 40/min, and blood pressure is 90/60 mm Hg. While continuing to assess your patient, replacing his nonrebreathing mask and checking IV patency, you notice a chest wound at his left lower rib cage. What are your initial actions?<br>This patient has high potential to experience a respiratory arrest. The focus of this case initially is tachycardia, tachypnea, and hypotension. Because you know the history of the patient, stabilizing vital signs and the open wound and calming your patient are priorities. You should continue to monitor narrow, rapid cardiac rhythm, increased respiratory rate, and hypotension. |
| **Tachycardia Algorithm** | Your patient most likely has a sucking chest wound, which can impair breathing due to interruption in the lungs, the diaphragm, and/or the chest wall. Because your patient has a large defect in his chest wall, he will need a chest tube and, most likely, surgery. So his **tachycardia** could be caused from the impaired lung integrity or loss of blood from the gunshot wound. You should be aware of signs of distress, such as continued dyspnea, chest pain, and decreased breath sounds on the side of the injury. If these signs are not acknowledged, your patient will have a respiratory arrest. |
| **Cardiac Arrest Algorithm (VF)** | Shortly after your patient experiences respiratory arrest and you begin ventilations, the patient goes into **VF**. Initiate high-quality CPR and prepare to defibrillate. |
| **Cardiac Arrest Algorithm (PEA)** | Despite adequate management of VF, the patient remains in cardiac arrest. The focus of the team should be on high-quality CPR, ongoing epinephrine as indicated, and a verbalization of the differential diagnosis while preparing to move to surgery. After the second shock and continued CPR, the rhythm changes to a **wide-complex tachycardia**. There is no pulse. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | After another round of CPR and medications, the patient regains a pulse. The student will be expected to reassess vital signs and initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Case 62 Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to gunshot wound | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |

# Case 63
# Scenario Location: In-Hospital
# Scenario Topic: Megacode Practice—Unstable Ventricular Tachycardia

**(Unstable Tachycardia → VF → PEA → PCAC)**

## Scenario Rating: 1

**Lead-in:** You are a healthcare provider caring for a 71-year-old man awaiting surgery for a small bowel obstruction. He signals you with his bedside call light that he is experiencing increasing shortness of breath, anxiety, and a feeling of impending doom.

## Case Development

| | |
|---|---|
| **Initial Assessment** | What are your initial actions?<br>His vital signs are heart rate 152/min, respiratory rate 24/min, blood pressure 90/52 mm Hg, and $SpO_2$ 93%.<br>Upon assessment, you notice the portable telemetry monitor shows a wide, monomorphic, rapid rhythm, which you identify as **VT**. He begins to experience diaphoresis, increasing shortness of breath, and apprehension. |
| **Tachycardia Algorithm** | You realize your patient is in unstable VT. Following the Tachycardia Algorithm, you know a critical action is recognizing the arrhythmia and its need for immediate treatment. You should also recognize that the patient is symptomatic and prepare for immediate cardioversion. Consideration of drug therapy should not delay cardioversion. |
| **Cardiac Arrest Algorithm (VF)** | Your patient suddenly develops **VF**. You will follow the VF/pVT pathway of the Cardiac Arrest Algorithm. A Team Leader designates team functions and monitors for high-quality CPR. The case should continue through safe defibrillation, administration of epinephrine, and consideration of an antiarrhythmic drug. |
| **Cardiac Arrest Algorithm (PEA)** | The situation continues and your patient is now in PEA. Your team should continuously monitor high-quality CPR and follow the PEA pathway of the Cardiac Arrest Algorithm. A likely occurrence is that your patient is in cardiogenic shock, so you should be able to state and discuss the differentiating diagnoses associated with PEA. |
| **Immediate Post–Cardiac Arrest Care Algorithm** | As a member of the resuscitation team, you continue high-quality chest compressions. Your patient has ROSC, and you initiate the Immediate Post–Cardiac Arrest Care Algorithm. |

## Megacode Practice Learning Station Checklist: Cases 50/53/58/61/63
## Tachycardia → VF → PEA → PCAC

Student Name _____ Date of Test _____

| *Critical Performance Steps* | ✓ if done correctly |
|---|---|
| **Team Leader** | |
| Ensures high-quality CPR at all times | |
| Assigns team member roles | |
| Ensures that team members perform well | |
| **Tachycardia Management** | |
| Starts oxygen if needed, places monitor, starts IV | |
| Places monitor leads in proper position | |
| Recognizes unstable tachycardia | |
| Recognizes symptoms due to respiratory arrest (choking) | |
| Performs immediate synchronized cardioversion | |
| **VF Management** | |
| Recognizes VF | |
| Clears before analyze and shock | |
| Immediately resumes CPR after shocks | |
| Appropriate airway management | |
| Appropriate cycles of drug–rhythm check/shock–CPR | |
| Administers appropriate drug(s) and doses | |
| **PEA Management** | |
| Recognizes PEA | |
| Verbalizes potential reversible causes of PEA (H's and T's) | |
| Administers appropriate drug(s) and doses | |
| Immediately resumes CPR after rhythm and pulse checks | |
| **Post–Cardiac Arrest Care** | |
| Identifies ROSC | |
| Ensures BP and 12-lead ECG are performed, $O_2$ saturation is monitored, verbalizes need for endotracheal intubation and waveform capnography, and orders laboratory tests | |
| Considers targeted temperature management | |

**STOP TEST**

**Instructor Notes**

- Place a ✓ in the box next to each step the student completes successfully.
- If the student does not complete all steps successfully (as indicated by at least 1 blank check box), the student must receive remediation. Make a note here of which skills require remediation (refer to Instructor Manual for information about remediation).

| **Test Results** | Circle **PASS** or **NR** to indicate pass or needs remediation: | **PASS** | **NR** |
|---|---|---|---|

Instructor Initials _____

Instructor Number _____ Date _____

# *Debriefing Tool*

**ACLS Sample Scenario: Megacode Practice Learning Station**

## Learning Objectives

- Apply the BLS, Primary, and Secondary Assessments sequence for a systematic evaluation of adult patients
- Perform prompt, high-quality BLS, including prioritizing early chest compressions and integrating early AED use
- Recognize respiratory arrest
- Perform early management of respiratory arrest
- Recognize bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Perform early management of bradyarrhythmias and tachyarrhythmias that may result in cardiac arrest or complicate resuscitation outcome
- Discuss early recognition and management of ACS, including appropriate disposition
- Discuss early recognition and management of stroke, including appropriate disposition
- Recognize cardiac arrest
- Perform early management of cardiac arrest until termination of resuscitation or transfer of care, including immediate post–cardiac arrest care
- Evaluate resuscitative efforts during a cardiac arrest through continuous assessment of CPR quality, monitoring the patient's physiologic response and delivering real-time feedback to the team
- Model effective communication as a member or leader of a high-performance team
- Recognize the impact of team dynamics on overall team performance

## General Debriefing Principles

- Use the table on the right to guide your debriefing.
- Debriefings are 4 to 6 minutes long (unless more time is needed).
- Address all objectives.
- Summarize take-home messages at the end of the debriefing.
- ***Encourage*** students to self-reflect, and engage all participants.
- ***Avoid*** mini-lectures, and prevent closed-ended questions from dominating the discussion.

| Action | Gather | Analyze | Summarize |
|---|---|---|---|
| • Assigns team roles and directs the team (effective team dynamics)<br>• Directs the systematic approach<br>• Directs team to administer 100% oxygen<br>• Directs team to apply monitor leads<br>• Directs IV or IO access<br>• Directs appropriate defibrillation and drug treatment<br>• Directs reassessment of patient in response to treatments<br>• Summarizes specific treatments<br>• Verbalizes indications for advanced airway if needed<br>• Considers reversible causes<br>• Directs post–cardiac arrest care | ***Student Observations*** (primary is Team Leader and Timer/Recorder)<br>• Can you describe the events from your perspective?<br>• How did you think your treatments went?<br>• Can you review the events of the scenario? *(directed to the Timer/Recorder)*<br>• What could you have improved?<br>• What did the team do well? | ***Done Well***<br>• How were you able to [*insert action here*]?<br>• Why do you think you were able to [*insert action here*]?<br>• Tell me a little more about how you [*insert action here*]. | ***Student-Led Summary***<br>• What are the main things you learned?<br>• Can someone summarize the key points made?<br>• What are the main take-home messages? |
| | ***Instructor Observations***<br>• I noticed that [*insert action here*].<br>• I observed that [*insert action here*].<br>• I saw that [*insert action here*]. | ***Needs Improvement***<br>• Why do you think [*insert action here*] occurred?<br>• How do you think [*insert action here*] could have been improved?<br>• What was your thinking while [*insert action here*]?<br>• What prevented you from [*insert action here*]? | ***Instructor-Led Summary***<br>• Let's summarize what we learned…<br>• Here is what I think we learned…<br>• The main take-home messages are… |