



**American
Red Cross**

Responding to Emergencies

Comprehensive First Aid/CPR/AED

INSTRUCTOR'S MANUAL



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CARDIAC EMERGENCIES



Lesson Length: 45 minutes

LESSON OBJECTIVES

After completing the lesson, participants should be able to:

- List the signals of a heart attack for both men and women.
- Describe the care for a person having a heart attack.
- Identify the links in the Cardiac Chain of Survival.

GUIDANCE FOR THE INSTRUCTOR

To complete this lesson and meet the lesson objectives, you must:

- Discuss the major types of cardiac emergencies.
- Conduct the activity related to the signals of a heart attack.
- Show the video, “Recognizing and Caring for Cardiac Emergencies.”
- Describe the care for a person experiencing a heart attack and cardiac arrest, including the role of CPR and AED.
- List the links in the Cardiac Chain of Survival.

MATERIALS, EQUIPMENT AND SUPPLIES

- *Responding to Emergencies: Comprehensive First Aid/CPR/AED DVD*
- DVD player and monitor
- LCD projector, screen and computer
- Participant’s textbook
- Course Presentation: Part Three, Cardiac Emergencies
- Newsprint or chalkboard
- Markers or chalk

TOPIC: INTRODUCTION

Time: 7 minutes

DISCUSSION

PRESENTATION: INTRODUCTION

- Two of the most common cardiac emergencies are heart attack and cardiac arrest.
- Cardiovascular disease is the leading cause of cardiac emergencies.
- Cardiovascular disease is an abnormal condition that affects the heart and blood vessels. It remains the number one killer in the United States and is a major cause of disability.
- Cardiovascular disease causes coronary heart disease (CHD), also known as coronary artery disease.
- CHD occurs when the coronary arteries that supply blood to the heart muscle harden and narrow in a process called atherosclerosis. The damage occurs gradually, as cholesterol and fatty deposits called plaque build up on the inner artery walls.
- As this build-up worsens, the arteries become narrower. This reduces the amount of blood that can flow through the arteries and prevents the heart from getting the blood and oxygen it needs.
- If the heart does not get blood containing oxygen, it will not work properly.

<p>DISCUSSION</p> <p>PRESENTATION: HEART ATTACK</p>	<ul style="list-style-type: none"> ■ A heart attack results when the blood and oxygen supply to the heart is reduced, usually from coronary heart disease. ■ Many people having a heart attack delay seeking care and often mistake the signals for indigestion. ■ By knowing and recognizing the signals of heart attack, you can ensure a person gets prompt care.
<p>SIGNALS OF A HEART ATTACK</p>	
<p>ACTIVITY</p>	<ul style="list-style-type: none"> ■ Ask participants to list the signals of a heart attack. ■ Record the participants' responses on newsprint or chalkboard. ■ Ask participants what they would do to care for someone who might be having a heart attack.
<p>VIDEO</p> <p>PRESENTATION: RECOGNIZING AND CARING FOR CARDIAC EMERGENCIES</p>	<p>Show the video segment, "Recognizing and Caring for Cardiac Emergencies." (2:21).</p> <p>Instructor's Note: <i>When showing the video, stop the video at the end of the indoor stories portion of the segment (approximately 2:21 minutes), just before the outside scenario, which focuses on cardiac arrest and the cardiac chain of survival, begins.</i></p>
<p>ACTIVITY</p>	<ul style="list-style-type: none"> ■ Ask the participants if there are any other signals of heart attack that they would add to their original list after seeing this video. <p>Instructor's Note: <i>Participants' responses should include the following signals:</i></p> <ul style="list-style-type: none"> ■ <i>Persistent chest pain, discomfort or pressure that lasts longer than 3 to 5 minutes or goes away and comes back</i> ■ <i>Discomfort in other areas of the upper body along with chest pain</i> ■ <i>Shortness of breath or trouble breathing</i> ■ <i>Nausea or vomiting</i> ■ <i>Dizziness, light-headedness or fainting</i> ■ <i>Pale or ashen skin</i> ■ <i>Sweating</i> ■ <i>Denial</i>
<p>DISCUSSION</p> <p>PRESENTATION: SIGNALS OF A HEART ATTACK</p>	<p>Instructor's Note: <i>When completing this discussion, compare the participants' responses recorded earlier about the signals of a heart attack with those presented in the discussion.</i></p> <ul style="list-style-type: none"> ■ The most prominent signal of a heart attack is persistent chest pain, discomfort or pressure that lasts longer than 3 to 5 minutes or goes away and comes back. ■ Heart attack pain: <ul style="list-style-type: none"> ○ Can range from discomfort to an unbearable crushing sensation in the chest. ○ May be described by the person as pressure, squeezing, tightness, aching or heaviness in the chest. ○ May start slowly as mild pain or discomfort. ○ Is often felt in the center of the chest behind the sternum. ○ Becomes constant and is usually not relieved by resting, changing position or taking medication. ○ Some individuals show NO signals at all.

SIGNALS OF A HEART ATTACK *Continued*

- Other signals include discomfort, pain or pressure that is felt in or spreads to the shoulder, arm, neck, jaw, stomach or back; trouble breathing and pale, ashen skin, particularly around the face. The skin may also be moist from perspiration.
- As with men, a woman's most common heart attack signal is chest pain, discomfort or pressure; but women are somewhat more likely to experience some of the other warning signals, particularly:
 - Shortness of breath.
 - Nausea or vomiting.
 - Back or jaw pain.
 - Unexplained fatigue or malaise.
 - Atypical chest pain such as sudden, sharp but short-lived pain outside of the breastbone.

CARE FOR A HEART ATTACK

DISCUSSION

PRESENTATION: CARE FOR A HEART ATTACK

- The most important first aid measure is to be able to recognize the signals of a heart attack and take action.
- A person having a heart attack may deny the seriousness of the signals he or she is experiencing. Do not let this denial influence you.
- If you think that the person might be having a heart attack, you must act:
 - Call 9-1-1 or the local emergency number immediately.
 - Have the person stop what he or she is doing and rest comfortably. Do not let the person walk around, for example.
 - Monitor the person closely until EMS personnel arrive. Note any changes in the person's appearance or behavior.
 - Be prepared to perform CPR or use an AED if the person loses consciousness and stops breathing.
 - Ask the person if he or she has a history of heart disease. Some people who have heart disease take prescribed medications for chest pain. You can help by getting the medication for the person and assisting him or her to take it.
 - Offer aspirin, if medically appropriate, in the form of two chewable (81 mg each) baby aspirins, or one 5-grain (325 mg) adult aspirin tablet with a small amount of water if the person is able to take medication by mouth and answers "No" to the following questions:
 - Is the person allergic to aspirin?
 - Does the person have a stomach ulcer or stomach disease?
 - Is the person taking any blood thinners?
 - Has the person been told by a doctor not to take aspirin?
 - Keep a calm and reassuring manner. Comforting the person helps reduce anxiety and eases some of the discomfort.
 - Loosen any restrictive or uncomfortable clothing the person is wearing.
 - Talk to bystanders and, if possible, interview the person to get more information.
 - Do not try to drive the person to the hospital yourself. The person's condition could quickly deteriorate while you are en route to the hospital.

TOPIC: ANGINA PECTORIS

Time: 2 minutes

<p>DISCUSSION</p> <p>PRESENTATION: ANGINA PECTORIS</p>	<ul style="list-style-type: none"> ■ Angina pectoris is chest pain that comes and goes at different times (intermediate chest pain or pressure). ■ Often simply called angina, it develops when the heart needs more oxygen than it is getting due to a narrowing of the coronary arteries. ■ When the coronary arteries are narrow and the heart needs more oxygen, heart muscle tissues may not get enough oxygen. ■ Pain associated with angina seldom lasts longer than 3 to 5 minutes. ■ A person who knows that he or she has a history of angina may have prescribed medication, such as nitroglycerin, to temporarily widen the arteries and therefore help relieve the pain. ■ Most people with angina are advised by their doctor to take three nitroglycerin doses over a 10-minute period if they are experiencing pain or discomfort, however some doctors prescribe nitroglycerin differently. ■ Since areas of narrowing can be the focus for clot formation and heart attack, if a person's typical pain of angina lasts longer than usual, 9-1-1 or the local emergency number should be called. It may be that the angina has progressed to a heart attack.
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TOPIC: CARDIAC ARREST

Time: 8 minutes

<p>DISCUSSION</p> <p>PRESENTATION: CARDIAC ARREST</p>	<ul style="list-style-type: none"> ■ Cardiac arrest occurs when the heart stops beating or beats too ineffectively and blood cannot be circulated to the brain and other vital organs. ■ It is a life-threatening emergency because without oxygen, brain damage can begin in 4 to 6 minutes, with the damage becoming irreversible after about 10 minutes. ■ Cardiovascular disease is the most common cause of cardiac arrest. Other causes include drowning, choking, and drug abuse, severe chest injuries, severe blood loss, electrocution, stroke or other types of brain damage. ■ Cardiac arrest is fatal without emergency care and can happen suddenly without any of the warning signals usually seen in a heart attack. ■ A person in cardiac arrest will be unconscious and will not be breathing. Remember, if you detect agonal breathing (an irregular gasping or shallow breath), you should care for the person as if they are not breathing at all. ■ In addition, the person's skin may be pale, ashen or bluish, particularly around the face. The skin also may be moist from perspiration.
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CARDIAC CHAIN OF SURVIVAL

<p>VIDEO</p> <p>PRESENTATION: RECOGNIZING CARDIAC EMERGENCIES</p>	<ul style="list-style-type: none"> ■ Show the video segment, "Recognizing Cardiac Emergencies" (2:04) <p><i>Instructor's Note:</i></p> <p><i>When showing the video, start the video at the beginning of the outdoor scenario, which focuses on a person in cardiac arrest and following the cardiac chain of survival (approximately 2:22 minutes to the end of the video).</i></p>
<p>DISCUSSION</p> <p>PRESENTATION: CARDIAC CHAIN OF SURVIVAL</p>	<ul style="list-style-type: none"> ■ A person has the greatest chance for survival when the four links of the Cardiac Chain of Survival happen as rapidly as possible. ■ Each link in the chain depends on, and is connected to, the other links.

CARDIAC CHAIN OF SURVIVAL *Continued*

- Each minute that CPR and defibrillation are delayed reduces the chance of survival by about 10 percent.
- As a lay responder, you are the first link in the Cardiac Chain of Survival.
- By acting quickly, you can make a positive difference for someone experiencing a cardiac emergency.

TOPIC: **CLOSING**

Time: 3 minutes

DISCUSSION	<ul style="list-style-type: none">■ Heart attack and cardiac arrest are the two most common cardiac emergencies.■ The primary signal of a heart attack is persistent chest pain, discomfort or pressure.■ Learning to recognize the signals of a heart attack and responding immediately can reduce the risk of cardiac arrest occurring.■ A person in cardiac arrest shows no signs of life.■ If a person experiences cardiac arrest, the greatest chance of survival occurs when the four links of the Cardiac Chain of Survival—early recognition and early access, early CPR, early defibrillation and early advanced medical care—happen as rapidly as possible.
ACTIVITY	<ul style="list-style-type: none">■ Answer participants' questions.
ASSIGNMENT	<ul style="list-style-type: none">■ Review Chapter 6, CPR for an Adult.■ Review the skill sheet: "CPR—Adult (No Breathing)" in Chapter 6 of the textbook.

CPR—ADULT



Lesson Length: 45 minutes

LESSON OBJECTIVES

After completing the lesson, participants should be able to:

- Describe the role of CPR in cardiac arrest.

After completing the skill session, participants should be able to:

- Demonstrate how to perform CPR for an adult.

GUIDANCE FOR THE INSTRUCTOR

To complete this lesson and meet the lesson objectives, you must:

- Review the reasons for performing CPR.
- Show the video segment, “CPR—Adult and Child.”
- Show the video segment, “Hands-Only CPR” (OPTIONAL).
- Conduct the skill session for performing CPR for an adult.

MATERIALS, EQUIPMENT AND SUPPLIES

- *Responding to Emergencies: Comprehensive First Aid/CPR/AED DVD*
- DVD player and monitor
- LCD projector, screen and computer
- Participant’s textbook
- Course Presentation: Part Three, CPR—Adult
- Skill Chart: “CPR—Adult (No Breathing)”
- Skill Assessment Tool: “CPR—Adult (No Breathing)”
- Nonlatex disposable gloves (multiple sizes)
- CPR breathing barriers (face shields or resuscitation masks, one for each participant)
- Adult manikins (one for every two participants)
- Decontamination supplies
- Blankets or mats
- Participant Progress Log (Appendix E or Instructor’s Corner)

TOPIC: INTRODUCTION

Time: 15 minutes

<p>DISCUSSION</p> <p>PRESENTATION: INTRODUCTION</p>	<ul style="list-style-type: none"> ■ A person in cardiac arrest will be unconscious and will not be breathing (Remember: agonal breaths do not count as breathing). ■ The cells of the brain and other vital organs will continue to live for a short period (approximately 4–6 minutes) until oxygen is depleted. However, without immediate intervention, a person will not survive. ■ CPR is a combination of chest compressions and rescue breaths, which when performed together, artificially take over the functions of the lungs and heart, increasing the person’s chance for survival by keeping the brain supplied with oxygen until advanced medical care can be provided.
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INTRODUCTION *Continued*

	<ul style="list-style-type: none">■ Follow the emergency action steps: CHECK—CALL—CARE to determine if an unconscious adult needs CPR.<ul style="list-style-type: none">○ CHECK the scene and the injured or ill person.○ If the person is unconscious, CALL 9-1-1 or the local emergency number or send someone to call.○ CHECK for breathing for no more than 10 seconds.○ Quickly CHECK for severe bleeding.○ If the person is not breathing, give CARE by beginning CPR with 30 chest compressions followed by 2 rescue breaths.■ If necessary, move the person so he or she is lying on his or her back on a firm, flat surface before beginning CPR. CPR is not effective if the person is on a soft surface, such as a bed or sofa, or is sitting up.
VIDEO PRESENTATION: CPR—ADULT AND CHILD	Show the video segment, “CPR—Adult and Child” (0:00 to 6:36). <i>Instructor’s Note:</i> <i>When showing the video, stop the video at the end of the adult portion of the segment (approximately 6:36 minutes), just before “CPR—Child” begins.</i>

TOPIC: CPR—ADULT

Time: 24 minutes

SKILL SESSION: CPR—ADULT	<ul style="list-style-type: none">■ Ask the participants to take the textbook, nonlatex disposable gloves and breathing barriers to the practice area. Tell participants that they will be using the skill sheet in Chapter 6 of the textbook.■ Assign partners or ask the participants to find a partner. One participant acts as the responder and the other observes.■ Have the participant acting as the responder from each pair kneel beside the manikin and clean or prepare the manikin for use.■ Guide the participants through the skill, beginning by checking the person.■ Give participants the appropriate prompt at each CHECK step and observe for the correct response. <p><i>Instructor’s Note:</i></p> <p><i>The compression rate during CPR is at least 100 compressions per minute. Use some form of an audio timing prompt, such as counting out loud (for example, “1 and 2 and 3 and 4 and 5 and ...”) to help participants give 30 compressions within 18 seconds.</i></p> <ul style="list-style-type: none">■ Give feedback when appropriate or help when requested.■ After the participants are able to practice the skill correctly, have them change places.■ Repeat the practice.■ Check off participants’ skills on the Participant Progress Log (Appendix E or Instructor’s Corner) after skills have been performed successfully.■ Use the remaining time to allow participants to continue practicing with partners to become more proficient with this skill.■ Answer participants’ questions.
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TOPIC: CONTINUOUS CHEST COMPRESSIONS

Time: 3 minutes

VIDEO PRESENTATION: HANDS-ONLY CPR	Show the video segment, “Hands-Only CPR” (1:42) (OPTIONAL).
DISCUSSION	<ul style="list-style-type: none">■ If you are unable or unwilling for any reason to perform full CPR (with rescue breaths), give continuous chest compressions after calling 9-1-1 or the local emergency number.■ Continue giving chest compressions until you notice an obvious sign of life, such as breathing, an AED is ready to use, another trained responder or EMS personnel arrive and take over, you are too exhausted to continue or the scene becomes unsafe.

TOPIC: CLOSING

Time: 3 minutes

DISCUSSION	<ul style="list-style-type: none">■ When performing CPR on an adult, give 30 chest compressions to a depth of at least 2 inches, at a rate of at least 100 compressions per minute followed by 2 rescue breaths.■ Do not stop CPR unless:<ul style="list-style-type: none">○ The adult shows obvious signs of life, such as breathing.○ An AED becomes available and is ready to use.○ Another trained rescuer or EMS personnel arrive and take over.○ You are too exhausted to continue.○ The scene becomes unsafe.■ If at any time the adult begins to breathe, stop CPR, keep the airway open and monitor breathing and any changes in the adult’s condition closely until EMS personnel take over.
ACTIVITY	<ul style="list-style-type: none">■ Answer participants’ questions.
ASSIGNMENT	<ul style="list-style-type: none">■ Review the skill sheet, “CPR—Child (No Breathing)” in Chapter 6 of the textbook.

Skill Chart and Skill Assessment Tool

SKILL CHART: CPR—ADULT (NO BREATHING)

In addition to performing the steps listed in this skill chart in the correct order, participants must meet the criteria below at the proficient level to be checked off for this skill.

After checking the scene and the injured or ill person:

1. Give 30 chest compressions.
 - Push hard, push fast in the center of the chest.
 - Compress the chest at least 2 inches deep for an adult.
 - Compress at a rate of at least 100 times per minute.
 - **Tip:** The person must be on a firm, flat surface.
2. Give 2 rescue breaths.
 - Tilt the head back and lift the chin up.
 - Pinch the nose shut then make a complete seal over the person's mouth.
 - Blow in for about 1 second to make the chest clearly rise.
 - Give rescue breaths, one after the other.
 - If the chest does not rise with the first rescue breath, retilt the head and give another rescue breath.
3. Do not stop. Continue cycles of CPR. Do not stop except in one of these situations:
 - You find an obvious sign of life, such as breathing.
 - An AED is ready to use.
 - Another trained responder or EMS personnel take over.
 - You are too exhausted to continue.
 - The scene becomes unsafe.
 - **Tip:** If at any time you notice an obvious sign of life, stop CPR and monitor breathing and for any changes in condition.

What to do next:

- Use an AED as soon as one is available.
- If breaths do not make the chest rise—Give CARE for unconscious choking.

SKILL ASSESSMENT TOOL: CPR—ADULT (NO BREATHING)

Criteria	Proficient	Not Proficient
Compress chest at least 2 inches deep for an adult.	Compresses chest straight down at least 2 inches for 24–30 times per 30 compressions	Compresses chest less than 2 inches for 7 or more times per 30 compressions
Let chest rise completely before pushing down again.	Compresses and fully releases chest without pausing or taking hands off chest for 24–30 times per 30 compressions	Pauses or fails to fully release chest while compressing for 7 or more times per 30 compressions
Compress chest at a rate of at least 100 times per minute (30 compressions in about 18 seconds).	Compresses chest 24–36 times in about 18 seconds	Compresses chest less than 24 or more than 36 times in about 18 seconds

SKILL ASSESSMENT TOOL: CPR—ADULT (NO BREATHING) *Continued*

Give rescue breaths.	Gives 2 rescue breaths that make the chest clearly rise Gives rescue breaths that last about 1 second	Gives 2 rescue breaths that do not make the chest clearly rise Gives 2 rescue breaths that last 2 or more seconds
Return to compressions.	Gives rescue breaths and returns to chest compressions within 3–6 seconds	Gives rescue breaths and returns to chest compressions but takes 7 or more seconds