

Arizona Peace Officer Standards and Training

Basic Curriculum Lesson Plan

LESSON TITLE: FIRST AID - RESPIRATORY/CARDIAC EMERGENCIES 8.1

SUBJECT:	First Aid (Respiratory/Cardiac Emergencies)
AZ POST DESIGNATION:	8.1.5, 8.1.8 and 8.1.15
HOURS:	3.5
COURSE CONTENT:	Descriptions of the respiratory and cardiac systems. Describes treatment for obstructed airways for infants, children and adults. Also addressed is cardiac emergencies and treatment.
PERFORMANCE OBJECTIVES:	<p>Upon completion of this course of instruction, students using notes, handouts and other support materials as references, within the allotted time, will:</p> <ul style="list-style-type: none">8.1.5 Identify the following major body system:<ul style="list-style-type: none">A. Respiratory. 8.1.8 Demonstrate (or) identify the proper techniques for CPR, including:<ul style="list-style-type: none">A. Adult – one (1) rescuer.B. Child – one (1) rescuer.C. Infant – one (1) rescuer.D. Foreign body obstruction:<ul style="list-style-type: none">1. Conscious.<ul style="list-style-type: none">a. Adult.b. Child.c. Infant.2. Unconscious.<ul style="list-style-type: none">a. Adult.

b. Child.

c. Infant.

E. Mouth-to-mask CPR.

8.1.15 Given written, verbal and visual descriptions of persons suffering from the following medical conditions, identify signs and symptoms, appropriate treatment steps and appropriate management procedures for treatment:

A. Heart problems.

B. Respiratory emergencies.

DATE FIRST PREPARED: January 1998

PREPARED BY: David Kleinman

REVIEWED – **REVISED**: David Kleinman
REVIEWED – **REVISED**: SME Committee DATE: December 1998
REVIEWED – **REVISED**: Officer Tim Taylor, SME Chairman DATE: October 2003
REVIEWED – **REVISED**: Officer Tim Taylor, SME Chairman DATE: February 2004
REVIEWED – **REVISED**: AZPOST Staff DATE: January 2011
REVIEWED – **REVISED**: First Aid SME Group DATE: November 2017
REVIEWED – **REVISED**: AZPOST (DocX) DATE: March 2022
AZ POST – APPROVAL: Don Yennie DATE: November 2017
AZ POST – APPROVAL: Lori Wait DATE: March 2022

INSTRUCTOR REFERENCES:

CLASS LEVEL: Student

TRAINING AIDS:

INSTRUCTIONAL STRATEGY: Interactive lecture and class discussion.

SUCCESS CRITERIA: 70% or higher on a written, multiple-choice examination.

COMPUTER FILE NAME: Respiratory Cardiac Emergencies

DATE RELEASED TO THE SHARE FILE: August 2023

I. INTRODUCTION

- A. Instructor – (self) introduction.
- B. Preview of performance objectives.

II. RESPIRATORY SYSTEM

P. O. 8.1.5A

- A. Provides for the oxygenation of blood and the elimination of carbon dioxide from the body.
- B. Components:
 - 1. Mouth and nose – this is where air is taken in and expelled.
 - 2. Larynx – voice box (easily damaged).
 - 3. Trachea – air tube (easily damaged).
 - 4. Lungs – where the exchange of gasses takes place.
 - 5. Diaphragm – the major muscle of respiration (located between the lungs and the stomach).
 - 6. Ribs – provide protection and support for the lungs.
- C. Infants and children.
 - 1. All structures are less developed and more easily damaged.
 - 2. All actions taken to help resuscitate must be done with the size of the infant or child taken into consideration.

III. RESPIRATORY EMERGENCIES

P. O. 8.1.15E

- A. Are respirations adequate? (< 8 OR > 24)
- B. Respiratory distress – care.
 - 1. Activate Emergency Medical Services (EMS).
 - 2. Maintain airway.

3. Check for obstruction.
 4. Calm the patient.
 5. Remove from the scene if problems are related to substances at the scene.
 6. Put the patient in a position of comfort.
- C. Opening the airway: (Demonstration & practical exercise)
1. Head tilt/chin lift.
 2. Modified jaw thrust.
- D. Rescue breathing. (Demonstration & practical exercise)
1. Mask to mouth.
 - a. The preferred method of artificial respiration. **P. O. 8.1.8E**
 - b. Make a seal with the patient's face and mask (covering both the nose and mouth).
 - c. Press tightly to the patient's face.
 - i. Show one (1)-handed and two (2)-handed seals.
 - ii. Two (2)-handed is the preferred method.
 - d. Use a mask, but follow the same steps as for mouth to mouth.
 - e. If using an adult mask on a child, then turn the mask upside down.
 2. Mouth to mouth. (Demonstration & practical exercise)
 - a. Activate EMS.
 - b. Open the airway.
 - c. If obstructed, clear with the appropriate treatment. **P. O. 8.1.8D**
 - d. Make a seal with the rescuer's mouth to the victim's.
 - e. Pinch the patient's nose closed.

- f. The rescuer exhales, inflating the victim's lungs. Approximate the amount of breath according to the size of the patient.

E. Mental exercise:

- 1. At a motor vehicle collision (MVA) you find a woman behind the wheel of a heavily-damaged vehicle. She is unconscious and unresponsive. You do not see her breathing.
 - a. What do you do first? (Call EMS)
 - b. What is your first intervention? (Open the airway.)
 - c. What do you check for? (Spontaneous respirations.)
 - d. If none, how do you treat it? (Mask to mouth breathing.)
 - e. What technique do you use? (Jaw thrust.)

F. Obstructed airway.

P. O. 8.1.8D

- 1. Causes of airway obstruction.
 - a. The tongue is the most common problem.
 - i. Usually occurs during unconsciousness when the patient's head flexes forward.
 - ii. Treatment is moving the head into a neutral position.
 - b. Foreign objects are common in children. **P. O. 8.1.8D**
 - c. Tissue damage when trauma has happened to the face or neck. Swelling occurs and constricts the airway.
 - d. Diseases, such as infection, may cause swelling. Anaphylaxis often causes extreme and rapid swelling. (Define "Anaphylaxis" for the students.) **P. O. 8.1.11.2C&F**
- 2. Completely-obstructed airway.
 - a. The patient is unable to talk.
 - b. The patient is in obvious distress.
 - c. Cyanosis – the bluish discoloration around mucous membranes, such as lips and

eyelids that come from the lack of oxygen.

d. The patient needs immediate intervention.

3. Partially-obstructed airway.

P. O. 8.1.8D

a. The patient can often make sounds.

b. There is some air movement.

c. The patient's demeanor is less than frantic.

d. The rescuer's interventions are to calm and monitor the patient.

e. EMS should still respond.

4. Treatment for completely-obstructed airway. (Demonstration & practical exercise.)

a. Ask the person, "Are you choking"?

b. Activate EMS.

c. Identify yourself and tell the patient that you will help.

d. Remember officer safety – gun side in or gun side out, depending on the environment.

e. Position yourself behind the patient. For a child or a small adult, kneel down.

P. O. 8.1.8B

f. Locate the xiphoid process and umbilicus and place your fist midway between them with the thumb side in. Apply force upward and inward to the abdominal wall.

g. Force should be sufficient to lift up the patient.

h. Keep doing it until the object is expelled or the patient goes unconscious.

i. If the patient goes unconscious, gently lower the patient to the ground, be very careful of a head injury.

j. Open the patient's airway, check for spontaneous breathing and look for a foreign object in the mouth.

k. With adults, you can put fingers in the mouth to take the object out.

- l. Attempt to ventilate.
 - m. If you cannot ventilate, then reposition the head and try again.
 - n. Begin CPR with chest compressions. (Define for students.)
 - o. After the first set of compressions, prior to delivering breaths, check for objects.
 - p. If the object is seen, remove. Continue CPR checking for objects after every set of compressions.
 - q. Once the airway is clear, check for spontaneous breathing and if none, then do rescue breathing and check for circulation.
5. Infant choking. **P. O. 8.1.8C**
- a. Get the child from the parent. (Demonstration & practical exercise.)
 - b. Tell the parent to call for EMS.
 - c. Hold the infant on your forearm or put the infant on a table.
 - d. If a conscious infant, check for breathing.
 - e. If obstructed, hold the infant face down and provide support by firmly holding the jaw. **P. O. 8.1.8D**
 - i. Support the infant's body by laying the infant on your forearm.
 - ii. Put the infant's crotch in the crook of your elbow.
 - f. Put the infant's head lower than the trunk.
 - g. Give five (5) forceful back blows with the heel of your hand between the infant's shoulder blades.
 - h. After back blows, put your free arm on the infant's back, cradle between your arms and turn the infant face up while supporting the head. (Sometimes called making a "baby sandwich.")
 - i. Give five (5) chest thrusts with your fingertips placed on the lower half of the sternum, approximately one (1) finger breadth below the nipple line.
 - j. Repeat back blows and chest thrusts until the airway is clear or until the infant goes unconscious.

- k. For an unconscious infant, first open the airway. Tilt the infant's head so that the nose is pointing straight up.
- l. Look, listen and feel for a breath.
- m. Cover both the nose and mouth and attempt to ventilate.
- n. If the first breath does not go in, reposition the head and try again.
- o. If unsuccessful, begin CPR.
- p. After the first set of compressions, prior to delivering breaths, check for objects.
- q. If the object is seen, remove. Continue CPR checking for objects after every set of compressions.
- r. If at any time you see an object, you can pull it from the mouth.
P. O. 8.1.8D
- s. Once the airway is clear, check for spontaneous breathing and put it in the recovery position.
- t. If no breathing, begin rescue breathing and check for circulation. (One breath every two to three seconds.)

IV. HEART PROBLEMS

P. O. 8.1.15A

- A. Angina pectoris.
 - 1. Pain that occurs when the heart needs more oxygen than is available.
 - 2. Pain that comes on with exertion, but lasts less than two (2) minutes.
 - 3. Patients are usually aware of their condition and have medication(s) prescribed for it.
 - 4. The rescuer may only assist the patient in taking his/her medication.
 - 5. Care is the same as for a heart attack.
- B. Heart attack.
 - 1. Condition.
 - a. Arteries in the heart muscle become clogged and can no longer supply all parts of the heart with adequate oxygen.

- b. Conditions, such as exertion, put a demand on the heart which in turn requires more oxygen.
 - c. Unable to meet the demand for oxygen, the part of the heart that is not properly supplied will die.
 - d. The heart may continue to pump even though part of it is dead.
2. Signs:
- a. A chest discomfort that can be in the form of pain, tightness, fullness or squeezing.
 - i. Often, the pain will radiate from the chest to the neck, jaw, arms or back.
 - ii. The pain usually lasts longer than two (2) minutes. (Pain continues even at rest, unlike angina.)
 - b. Nausea/vomiting.
 - c. Shortness of breath.
 - d. Sweating.
 - e. Weakness.
 - f. Restlessness.
 - g. Lightheaded.
 - h. The patient says they think they are going to die.
 - i. Gray ashen pallor.
3. Emergency care.
- a. Activate EMS. ***INSTRUCTOR NOTE:*** *This would be a good place to familiarize officers with a portable AED, which are becoming more common.*
 - i. For adults only, you may leave the patient to make a call for EMS.
 - ii. Early defibrillation is definitive medicine for a heart attack.
 - b. Keep the patient at rest.

- c. Place the patient in a position of comfort.
 - d. Loosen any restrictive clothing.
 - e. Cover the patient to prevent any chills.
 - f. Monitor vital signs.
 - g. Provide emotional support.
 - h. Be prepared to do rescue breathing and closed-chest compressions.
- C. Closed-chest compressions. (Demonstration & practical exercise.)
- 1. If the heart is no longer functioning as a pump, then closed-chest compressions must be initiated to take over the cardiac function.
 - 2. Pulselessness **MUST** be verified. Check the carotid pulse since a radial pulse is not a reliable indication of cardiac activity.
 - 3. The patient must be on a hard surface.
 - 4. Kneel next to the patient with your knees at his/her hip and chest level.
 - 5. Locate the Center of the chest.
 - 6. With your shoulders over the midline of the patient, lock your elbows and use your body weight to compress the patient's chest at least 2 inches at least 100 times per minute.
 - 7. Release the chest compression between each repetition to allow blood flow back to the heart. ***INSTRUCTOR NOTE: New methods in CPR are being researched, but have not been adopted for use at this time.***
- D. **Mental exercise:**
- 1. You are out at a public relations talk at a park. A woman runs up to you holding a small child. She tells you that he said he got stung by a bee and was just fine, but then started gasping.
 - a. What do you do first? (Call EMS.)
 - b. What is your first intervention? (Open the airway and check for respirations.)
 - c. If none, what do you do? (Give two breaths.)

- d. What do you check next?
- e. If none, what do you do? (Chest compressions.)

V. CONCLUSION

- A. Review of performance objectives.
- B. Final questions and answers.
- C. Instructor closing comment(s).