

Lesson One – Cardiac Management and AED

LEARN: Cardiac Management and AED Curriculum Slide Presentation

60 minutes

Purpose:

Participants will receive a thorough introduction to the identification of cardiac arrest and how to perform CPR on an adult, child, and infant. They will also learn how to apply an AED to a patient and use the AED utilizing the AED Trainer.

Materials:

- *Cardiac Arrest Management and AED* slide presentation
- AED Trainer for student practice and demonstration of skills
- Adult, Child, and Infant CPR Manikins for student practice and demonstration of skills
- Adult and Infant BVM's for student practice and demonstration of skills
- O2 (if available)

Facilitation Steps:

Share the following information as you show the slide presentation.

Slide 2: Prerequisite knowledge for this lesson is basic anatomy and physiology, how to check for a carotid pulse in an adult and child, how to check for a brachial pulse in an infant, proper use of personal protective equipment and BSI procedures, and proper patient care, evaluation, and documentation procedures.

Slide 3: Explain how the terms *sudden cardiac death*, *cardiopulmonary arrest*, and *sudden cardiac arrest* (SCA) all have the same meaning. Depending on where your school is located and what agency/jurisdiction the EMT will work in, different terms will be more commonly used. Most people think that cardiac arrest affects only people 60 years and older. However, statistics show that 1/3 of SCA patients are under 60 years old. Cardiac arrest claims more lives than colorectal cancer, breast cancer, prostate cancer,

influenza, pneumonia, auto accidents, HIV, firearms, and house fires **combined**.

Slide 4: Bystander CPR increases survival rate by 50-75%. Even with quick response times by first responders, if CPR is not initiated within 2 minutes, the likelihood of surviving and recovering from an SCA diminishes drastically.

Slide 5: Stress the importance of this diagram and how it relates to lay rescuers (bystanders) being an important part of the chain of survival before EMS arrive.

Slide 6: The AED has become more prominent in public places and the workplace. The goal is to educate bystanders on how to use an AED and perform CPR to help improve the survival rate during a cardiac arrest. The AED will not shock asystole (flat line), which a lot of bystanders don't understand. Explain why asystole is not a viable rhythm to shock.

Slide 7: This is a quick overview of the AED Trainer and its different functions so that students can familiarize themselves with how to operate it.

Slide 8: If in doubt of a child's age or weight, the adult pads can be used. Explain the reason for drying the chest prior to applying the pads for better adhesion. Also, if a person is very hairy and the EMTs have a razor, it is advisable to quickly shave the chest where the pads will be placed.

It is extremely important to make sure everyone is clear of the patient and their clothing. Even if someone is not touching the patient, if they are near the patient's limbs, they can get shocked if the limbs move during the shock. If the patient is on a gurney, be sure no one is touching the gurney prior to shocking. Make sure to stress the importance of this.

Slide 9: Some AEDs will not have pediatric pads, especially in certain workplaces. If there are no pediatric pads available, adult pads can be used. If adult pads are used, apply one to the middle of the chest and one in the middle of the back. Some AEDs have a switch that can be set to deliver a pediatric shock. If available, turn the switch on when using on children younger than eight years old. If the AED cannot deliver a pediatric shock, an adult shock should be given.

Slide 10: If a manual defibrillator is not available, an AED can be used. Some AEDs have a switch that can be set to deliver a pediatric shock. If available, turn the switch on when using on children younger than eight years old. If the AED cannot deliver a pediatric shock, an adult shock should be given.

Slide 11: If a student has taken a CPR class before 2010, they will recognize that the order in which CPR is performed has changed. The American Heart Association reviews its guidelines every five years, and in 2010 implemented a new standard for CPR. These are the current guidelines and are up for review in 2020. The reason for the change was they found that early compressions to keep the oxygen-rich blood circulating through the body is more important than providing rescue breaths first. They also have in the guidelines that if a bystander does not feel comfortable in providing rescue breaths, that compression-only CPR still has a significant impact on a person's survivability.

Slide 12: These are the guidelines for Cardiac Arrest Management and AED use by the NREMT, adapted from their skills sheet. The NREMT follows The American Heart Association guidelines for CPR and AED.

Approach the patient from their side so they can have visual contact with you if they are conscious.

Standards have changed, so there is no checking for a pulse in the workplace or with community rescuers because studies found that they often weren't properly trained to check for a pulse. The new standards say that if someone is not breathing, they most likely do not have a pulse.

The old standards of ABCs have changed to CAB: Compressions, Airway, and Breathing. However, first responders still check for a carotid pulse.

Explain how the ribs and sternum can break during CPR (especially in elderly patients). This is not uncommon, and while the sound and feel of bones breaking is not a pleasant experience, it is necessary for the patient because without CPR, they will not survive.

Another name for a bag valve mask is an Ambu bag. Different agencies will use different terminology at times. Explain and demonstrate how to set up an Ambu bag to oxygen and how it is used in CPR.

Slide 13: Demonstrate proper hand placement for CPR and the depth needed for each patient. Explain the rate needed, and the importance of a patient lying on a firm, flat surface. If a patient is lying in bed, they need to be brought down to the floor before CPR is initiated. The song "Staying Alive" is a good tool for rescuers to use to learn how fast compressions need to be.

Slide 14: The head tilt/chin lift can be demonstrated to the students as well as how to properly apply the mask to a patient's face for ventilation.

Slide 15: If there are more than two rescuers, one can do compressions, one can do ventilations, and the other can get the AED ready. The AED pads can be applied around the rescuer performing compressions. CPR should not be stopped to apply the pads.

Slide 16: Many times, when CPR is being performed by a bystander before first responders arrive, the CPR may not be performed properly (such as inadequate compressions). It is not the place of the first responder to correct the bystander on their skills. Just take over when you are ready and thank them for their help.