



## HEALTHCARE SCIENCE

**COURSE:** 25.562 Concepts of Emergency Medicine

**UNIT:** 21.1 Cardiovascular Emergencies



## INTRODUCTION

**Annotation:**

This unit emphasizes the steps of Basic Life Support (BLS). Students will be able to demonstrate these steps on adult, child and infant manikins and identify common cardiac emergencies.

**Grade(s):**

X	9 <sup>th</sup>
X	10 <sup>th</sup>
X	11 <sup>th</sup>
X	12 <sup>th</sup>

**Time:** Five 50 minute periods

**Author:**

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**Additional Author(s):**

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**Students with Disabilities:**

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.



# FOCUS STANDARDS

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## **GPS Focus Standards:**

### **HS-CEM-10**

**Students will demonstrate the steps of Basic Life Support (BLS).**

- a. Differentiate between biological death and clinical death.
- b. Demonstrate cardiopulmonary resuscitation on an infant, a child, and an adult (simulate using manikins), utilizing personal protective devices and the use of standard precautions for disease prevention.
- c. Identify when cardiopulmonary resuscitation may be discontinued once it has been initiated.
- d. State the indications and contraindications for automated external defibrillation.
- e. Demonstrate the application, operation, and maintenance of an automated external defibrillator trainer.

## **GPS Academic Standards:**

None assigned

## **National / Local Standards / Industry / ISTE:**

- |        |   |
|--------|---|
| 4-3.3  | List the indications for automated external defibrillation (AED). (C-1)   |
| 4-3.4  | List the contraindications for automated external defibrillation. (C-1)   |
| 4-3.5  | Define the role of EMT-B in the emergency cardiac care system. (C-1)  |
| 4-3.6  | Explain the impact of age and weight on defibrillation. (C-1)   |
| 4-3.7  | Discuss the position of comfort for patients with various cardiac emergencies. (C-1)  |
| 4-3.8  | Establish the relationship between airway management and the patient with cardiovascular compromise. (C-3)                                    |
| 4-3.9  | Predict the relationship between the patient experiencing cardiovascular compromise and basic life support. (C-2)                             |
| 4-3.10 | Discuss the fundamentals of early defibrillation. (C-1)   |
| 4-3.11 | Explain the rationale for early defibrillation.(C-1)  |
| 4-3.12 | Explain that not all chest pain patients result in cardiac arrest and do not need to be attached to an automated external defibrillator.(C-1) |
| 4-3.13 | Explain the importance of prehospital ACLS intervention if it is available. (C-1)   |

- 4-3.18 State the reasons for assuring that the patient is pulseless and apneic when using the automated external defibrillator.(C-1)
- 4-3.25 List the steps in the operation of the automated external defibrillator. (C-1)



## UNDERSTANDINGS & GOALS

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### Enduring Understandings:

Students will understand the need for CPR when a patient goes into cardiac arrest. They will also have a deeper understanding of The “Good Samaritan Laws” that protect people who stop and offer aid off duty.

### Essential Questions:

- How can the First Responder provide good CPR?
- Why do the guidelines for CPR change over the years?
- What changes are coming in the future for CPR? Explain.

### Knowledge from this Unit: The student should know

- The difference between biological death and clinical death.
- The steps in performing cardiopulmonary resuscitation on an infant, a child, and an adult, (simulate using manikins) utilizing personal protective devices and the use of standard precautions for disease prevention.
- The indications and contraindications for automated external defibrillation.
- How to apply, operate, and maintain an automated external defibrillator or AED trainer.
- The five instances when cardiopulmonary resuscitation may be discontinued once it has been started.

### Skills from this Unit:

Differentiate between biological death and clinical death.

- Demonstrate 1 and 2 person cardiopulmonary resuscitation on an infant, a child, and an adult, (simulate using manikins) utilizing personal protective devices and the use of standard precautions for disease prevention.
- Identify when cardiopulmonary resuscitation may be discontinued once it has been initiated.
- State the indications and contraindications for automated external defibrillation.
- Demonstrate the application, operation, and maintenance of an automated external defibrillator trainer.



## ASSESSMENT(S)

**Assessment Method Type:** Select one or more of the following. Please consider the type(s) of differentiated instruction you will be using in the classroom.

- ☐ Pre-test
- ☒ Objective assessment - multiple-choice, true- false, etc.
  - ☐ Quizzes/Tests
  - ☒ Unit test
- ☐ Group project
- ☒ Individual project
- ☐ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
  - ☐ Self-check rubrics
  - ☐ Self-check during writing/planning process
  - ☐ Journal reflections on concepts, personal experiences and impact on one's life
  - ☐ Reflect on evaluations of work from teachers, business partners, and competition judges
  - ☐ Academic prompts
  - ☐ Practice quizzes/tests
- ☐ Subjective assessment/Informal observations
  - ☐ Essay tests
  - ☐ Observe students working with partners
  - ☐ Observe students role playing
- ☒ Peer-assessment
  - ☐ Peer editing & commentary of products/projects/presentations using rubrics
  - ☐ Peer editing and/or critiquing
- ☐ Dialogue and Discussion
  - ☐ Student/teacher conferences
  - ☐ Partner and small group discussions
  - ☐ Whole group discussions
  - ☐ Interaction with/feedback from community members/speakers and business partners
- ☐ Constructed Responses
  - ☐ Chart good reading/writing/listening/speaking habits
  - ☒ Application of skills to real-life situations/scenarios
- ☐ Post-test

**Assessment(s) Title:**

- Cardiopulmonary Emergencies Unit Exam
- CPR Skill Rubrics

**Assessment(s) Description/Directions:**

- Cardiopulmonary Emergencies Unit Exam – Objective assessment that should be given at the end of the unit
- CPR Skill Rubric – Performance assessment to be complete by the end of the unit.

### Attachments for Assessment(s):

[Cardiopulmonary Emergencies Unit Exam](#)

[Cardiopulmonary Emergencies Unit Exam Key](#)

[CPR Skill Rubrics](#)

Cardiovascular Emergencies Rubric



## LEARNING EXPERIENCES

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**Instructional planning:** Include lessons, activities and other learning experiences in this section with a brief description of the activities to ensure student acquisition of the knowledge and skills addressed in the standards. Complete the sequence of instruction for each lesson/task in the unit.

### Sequence of Instruction

#### 1. Identify the Standards. Standards should be posted in the classroom for each lesson.

HS-CEM-10 Students will demonstrate the steps of Basic Life Support (BLS).

#### 2. Review Essential Questions.

- How can the First Responder provide good CPR?
- Why do the guidelines for CPR change over the years?
- What changes are coming in the future for CPR? Explain.

#### 3. Identify and review the unit vocabulary.

##### Vocabulary

- Angina pectoris
- Acute myocardial infarction
- Bradycardia
- Tachycardia
- Acute coronary syndrome
- Cardiac compromise
- Congestive heart failure
- Embolism
- NTG
- PEA
- Clinical death

- Biological death
- Arrhythmias
- AED

#### **4. Assessment Activity.**

##### **Lesson 1**

1. Identify the Standards. Standards should be posted in the classroom for each lesson.
2. Review Essential Questions.
3. Identify and review the unit vocabulary.
4. Assign students a correlating reading assignment and have them complete the Cornell note-taking hand-out.
5. Discuss as a class and emphasize the main ideas and questions that the students were able to extrapolate from the text.

##### **Lesson 2**

1. Identify the Standards. Standards should be posted in the classroom for each lesson.
2. Review Essential Questions.
3. Identify and review the unit vocabulary.
4. Present multimedia presentation concerning cardiopulmonary emergencies and provide students with the note outline to complete.
5. Break up lecture and notes with demonstrations of the discussed skills.

##### **Lesson 3**

1. Identify the Standards. Standards should be posted in the classroom for each lesson.
2. Review Essential Questions.
3. Identify and review the unit vocabulary.
4. Set-up skill stations for 1-man CPR (adult, child, and infant), 2-man CPR (adult, child, and infant), conscious and unconscious choking, and AED. Monitor student practice, provide feedback and rotate the students through the stations. Provide rubric at each skill station and encourage peer assessment.

##### **Lesson 4**

1. Identify the Standards. Standards should be posted in the classroom for each lesson.
2. Review Essential Questions.
3. Identify and review the unit vocabulary.
4. Review important information and provide final feedback for skills performance.

5. Begin assessing students for culminating performance task.
6. Distribute the cardiopulmonary emergency brochure assignment and instruct students to work silently while they are waiting to complete their performance exam. Give the Cardiovascular Emergencies Rubric and give them a due date. [I like that students have something meaningful to do while you assess 😊](#)

## Lesson 5

1. Distribute and complete Cardiopulmonary Emergencies unit exam.

### Attachments for Learning Experiences:

Cornell note-taking hand-out: <http://freeology.com/graphicorgs/index.php>

Multimedia Presentation

[Rubrics](#)

[Cardiopulmonary Emergencies Brochure](#)

### Notes & Reflections:

The instructional and testing materials for cardiopulmonary resuscitation and AED training may vary according to the Certification of the instructor. Also, available equipment will impact the time it takes for all of the students to complete practice time.



## CULMINATING PERFORMANCE TASK (Optional)

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### Culminating Unit Performance Task Title:

Cardiopulmonary Resuscitation/AED Performance Skills

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

The students will be assessed performing 1-man CPR (adult, child, and infant), 2-man CPR (adult, child, and infant), conscious and unconscious choking, and the AED.

### Attachments for Culminating Performance Task: Please list.

[Adult/Child 1-rescuer CPR](#)

[Adult 2-rescuer CPR + AED](#)

[Infant 1- and 2- rescuer CPR](#)



## UNIT RESOURCES

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### Web Resources:

[www.americanheart.org](http://www.americanheart.org)

<http://freeology.com/graphicorgs/index.php>

[www.ems.gov](http://www.ems.gov)

### Attachment(s):

### Materials & Equipment:

- Manikins
- bag-valve-mask
- AED trainer

### What 21st Century Technology was used in this unit:

<input checked="" type="checkbox"/>	Slide Show Software
<input type="checkbox"/>	Interactive Whiteboard
<input type="checkbox"/>	Student Response System
<input type="checkbox"/>	Web Design Software
<input type="checkbox"/>	Animation Software
<input type="checkbox"/>	Email

<input type="checkbox"/>	Graphing Software
<input type="checkbox"/>	Calculator
<input type="checkbox"/>	Desktop Publishing
<input type="checkbox"/>	Blog
<input type="checkbox"/>	Wiki
<input type="checkbox"/>	Website

<input type="checkbox"/>	Audio File(s)
<input checked="" type="checkbox"/>	Graphic Organizer
<input type="checkbox"/>	Image File(s)
<input type="checkbox"/>	Video
<input type="checkbox"/>	Electronic Game or Puzzle Maker



