CPR Review for Healthcare Providers:
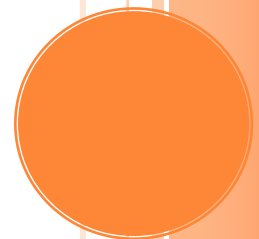
INSTRUCTIONAL DESIGN DOCUMENT

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CPR Review for Healthcare Providers:

COURSE NAME:

CPR Review for Healthcare Providers

COURSE JUSTIFICATION: This course is being prepared for the Steward
Healthcare organization that is growing by acquisition and mergers. Steward Health Care
education is not a centralized function and has organized clinical training at the hospital
level. Given that organizationally the nurse education groups are in a silo formation and
don't have much overlap with each other, there are instances where there is duplication of
effort and inefficiencies. One example is the standard mandatory clinical courses that must
be conducted across all facilities, such as the Basic Life support course (BLS). If some of
these courses could be offered and tracked centrally this could result in some time and staff
efficiencies. Consequently, the Corporate office has decided to consolidate some of the courses
and offer them from a central LMS in an e-learning format. In this way, the nurses will be
able to take these courses on their own time and the course can be developed and offered
from a central location. Additionally, since it is a mandatory compliance course, tracking
which nurses took and completed the course can be more easily achieved.

This course is meant to be the first of several courses to educate and review with the clinical
staff basic life support skills and will enable them to recognize emergencies such as sudden
cardiac arrest and how to respond to them.

This course will focus on the information
and skills needed for adult, child and
infant cardiopulmonary resuscitation
(CPR).

Sudden cardiac arrest is a leading cause of
death in the United States and Canada.
Approximately 330,000 people die annually
from coronary heart from coronary heart
disease before reaching a hospital or
emergency room.

INSTRUCTIONAL GOAL

The clinical personnel at Steward Healthcare will be able to recall and show the basics steps of CPR for adults, children and infants.

INSTRUCTIONAL OBJECTIVES

CPR for Adults Module

1. Using the chest compression technique, clinical personnel will perform chest compressions for adults. This includes positioning hands for chest compressions, performing chest compressions at the right rate, with complete chest recoil and correct depth.

2. Using the airway and breath technique, clinical personnel will demonstrate how to open an airway and give breath for adults. This includes performing the head tilt-chin lift, giving mouth-to-mouth breaths to the victim and mouth-to-mask breaths to the victim.

3. Using the 1-Rescuer Adult CPR Sequence, clinical personnel will singly perform CPR for an adult. This includes identifying when to start CPR on a victim and showing the complete sequence for 1-rescuer CPR.

CPR for Children Module

1. Using the approved modifications to CPR for children, clinical personnel will perform CPR for a child. The modifications include amount of air for breaths, depth of compressions, use 1 handed chest compressions for small children, what to do when the child's pulse is less than 60 beats per minute, when to attach an AED and when to activate the ER response system.

CPR for Infants Module

1. Using the chest compression technique for infants, clinical personnel will perform chest compressions for infants. This includes positioning hands for chest compressions, performing chest compressions at the right rate, with complete chest recoil and correct depth.
2. Using the airway and breath technique for infants, clinical personnel will demonstrate how to open an airway and give breath for infants. This includes performing the head tilt-chin lift, giving mouth-to-mouth breaths to the victim and nose-to-mouth breaths to the victim.

3. Using the 1-Rescuer Infant CPR Sequence, clinical personnel will singly perform CPR for an infant. This includes identifying when to start CPR on a victim and showing the complete sequence for 1-rescuer CPR.

AUDIENCE ANALYSIS

Entry Behaviors

Students need to be proficient in the following entry behaviors to successfully perform the instructional goal of recall and showing the basic steps of CPR for adults, children and infants.

- Clinical personnel are expected to be computer literate to the extent that they know how to navigate e-learning screens.

- Clinical personnel are expected to have already received this training at least once for licensure. This should be a review class for them.

- Clinical personnel are expected to know how to use and operate the dummies in order to show their CPR techniques.

Learner Analysis

Clinical personnel should already be knowledgeable in this area as this was a requirement for their licenses. This course is a compliance course that is mandatory for them to take every year to maintain their licenses. There is some resistance at some hospitals where taking a course on their own time could be a union/compensation issue. Other than that the clinical personnel are comfortable using computers to take the course and some welcome the ability to do it in the peace and quiet of their own homes.

The overall impression is that the training must be efficient and interactive to keep the learners engaged.

Information Categories	Learner Characteristics
Prior Knowledge of Topic Area	Learners have a prior knowledge of topic and should have performed the techniques many times before
Attitudes toward content	There is some resistance by the learners to use an e-learning approach. Learners are not sure how this is going to work.
Attitudes toward potential delivery system	Learners are comfortable with taking online training. It enables them to not only take it when their schedule allows, but they can also go back and use it as a reference tool. Some hospitals do have union/compensation issues to work out
Motivation for instruction	This is directly related to their license renewals and it is a certification course that is mandatory. So they are motivated to complete the course.
Educational and ability levels	Learner's educational levels are such that most have college degrees or have completed clinical training of

	some sort (radiation therapists, nursing assistants, etc.)
General Learning preferences	Learners are comfortable with a variety of learning approaches. However, in most cases there is a preference for online learning so that they can fit it into their busy schedules.
Attitudes toward training organization	Learners are neutral toward the training organization. They realize that the mandate is coming from the state boards.
General Group characteristics	The learners should be comfortable with their CPR techniques. There will be about 5,000 learners who will participate in this training. The students range from 25 – 60 years of age.

Learning Context

The basic learning context for the CPR Course is web-based instruction that will reside as a course within their LMS system. This will be on demand training so that they can take the training whenever their daily work schedule permits. Delivering the training in this way means that there is very little setup needed for learners to connect to their training. They should be able to use the laptop or desktop they currently use in the office or the home where they reside.

Since they all have previous access to the LMS system, there is also no need to ensure logins or connectivity needs to be tested.

Information Category	Learning Site Characteristics
Number/Nature of Sites	**Number:** Learners are dispersed across six hospitals in Massachusetts. There potentially could be more if other hospitals are acquired. **Facilities:** The web-based instruction will be delivered directly over the Internet and onto their desktop/laptops. **Equipment:** The only hardware or equipment needed is their desktop or laptop. They must have access to the Internet and the ability to login into the company VPN and LMS system. Adobe Flashplayer must be loaded on the HW. They also must have speakers as there may be audio. **Constraints:** Ideally, they would like the content run-time to be no more than 1 hour.
Site Compatibility with	Learners will have to make sure they can access the LMS

Instructional Needs	from their home computers. This means that will need to get VPN access to get through the firewall or over the Internet of the LMS is hosted. The HW should meet the minimum requirements of an XP operating system with 1 gig of memory. And they all have access to the LMS.
Site Compatibility with Learner Needs	Since the learners will be taking the instruction from their own offices or their own desktop/laptops at home, they are already comfortable in this environment.
Feasibility for Simulating Workplace	Since CPR is a physical function only some of the training will reside online. At some point the clinical personnel will have to perform the techniques on a CPR "dummy". This will have to be coordinated in the instructional strategy.

Performance Context

Working in a hospital setting means that the CPR skills could be called upon at any day any day. However, since this skill is not used every day they must recertify every year so they can keep their skills up to date.

Managers will be able to check within the LMS to see which of their personnel are recertified and who still needs to take the course. Since it is a re-certification course, it is imperative that this course be taken in a timely manner.

INSTRUCTIONAL STRATEGY

This will be a self-paced, computer-based training (CBT) course, delivered through the Steward LMS.   Instruction is designed to be available on-demand for clinical personnel. While all the major topics must be covered, they can be taken non-sequentially. However, the lessons within each topic must be completed in order and so the learner will have to take the lessons as they have been designed. We want to make sure that clinical personnel know the correct order of CPR steps; it is not something to be skipped. Clinical personnel will be able to take the course at their own pace and take as much time as needed. Additionally, they can go back and revisit any of the three topics as many times as they would like.

There will be assessments after each topic. Learners are expected to show a 90% or better score.

This training will consist of three modules or tutorials developed using Adobe Captivate.

The Adult and Infant module will be approximately 30 minutes in length while the one for children will be shorter, about 15 minutes in length. These modules will address the basics of the CPR techniques. Within each module, information will be chunked into smaller sections that correspond with the objectives.

Upon completion of the e-learning portion of the CPR course, clinical personnel will be required to go onsite to one of the CPR Test Centers in the Steward System and perform a final test. They will have to make an appointment with the personnel at the test center. Upon successful completion, the instructor at that center will mark the student as "completed" within the LMS system and they will then be recertified un CPR for another year.

INSTRUCTIONAL MATERIALS

Materials developed for the course will be a series of Captivate modules. This course will be hosted on the Steward LMS. To view materials users must have a computer with access to the Internet and Flash player 8 or above installed with their browser. Learners should have XP or higher on their machine with at least 1 gig of ram. Those learners who do not have high speed Internet or have an inadequate computer at home can take the course in their office or using one of computers on their floor. The computers at Steward all have adequate software and hardware configurations.

COURSE DEVELOPMENT TIMELINE

The following project timeline is proposed to develop and create the CPR course:

Task	Task Owners	Duration
Template Development	PM, ID	3 days
Storyboards	ID	1 week
Storyboard Approval	ID, SME, PM	3 days
Captivate Development	ID	8 days
CBT Review	SME, PM	2 days

CBT Modifications	ID	3 days
LMS Integration	ID	1 day
CBT Pilot	Learners	2 days
CBT Pilot Feedback	ID, PM	1 day
CBT Pilot Modifications	ID	1 day
LMS Launch	PM	1 day

TOPIC AND LESSON STRUCTURE (ABSORB, DO, CONNECT)

Topic	Objective	Content	Absorb	Do	Connect	Media
CPR for Adults	Using the chest compression technique, clinical personnel will perform chest compressions for adults. This includes positioning hands for chest compressions, performing chest compressions at the right rate, with complete chest recoil and correct depth.	• The importance of chest compressions • Chest Compression Technique • Chest Recoil • Compression Rate • Moving the Victim	The lesson will begin with a video introducing an avatar member from the nursing staff. The avatar will identify the objective for the lesson. The avatar will "narrate" the rest of the lesson, which will contain some lecture and then graphics or video examples to show how to perform the steps.	**Mini case study** The clinical avatar presents you with a scenario in which you come upon an adult who has collapsed. The learner will be asked to choose from a set of possible steps of how to begin chest compressions. If the correct answer is chosen then the learner is given feedback to let them know they have answered correctly and why. If they did not respond correctly then they are told the consequences of their actions (what happens to the victim) And they need to start over again. If they have two mistakes they must retake the Absorb activity. There is little room for error with someone's life.	A job aid that contains the compression steps will be provided. This will be a link at the end of the e-learning Adult CPR topic. They can print this out and keep it with them. These job aids will also be posted on the floors where they work.	Captivate slides, graphics and video PDF for the Job Aid
	Using the airway and	• Rescuer Position	For consistency, the	For consistency, the same	For consistency,	Captivate

Topic	Objective	Content	Absorb	Do	Connect	Media
	breath technique, clinical personnel will demonstrate how to open an airway and give breath for adults. This includes performing the head tilt-chin lift, giving mouth-to-mouth breaths to the victim and mouth-to-mask breaths to the victim.	• Performing the Head Tilt-Chin Lift • Things to avoid • Mouth-to-mouth breathing • Risk of Gastric Inflation • Mouth-to-Mask	same type of Absorb activity will be applied to the airway and breath technique lesson as was used in the chest compression lesson.	type of Do activity will be applied to the airway and breath technique lesson as was used in the chest compression lesson.	the same type of Connect activity will be applied to the airway and breath technique lesson as was used in the chest compression lesson.	slides, graphics and video PDF for the Job Aid
	Using the 1-Rescuer Adult CPR Sequence, clinical personnel will singly perform CPR for an adult. This includes identifying when to start CPR on a victim and showing the complete sequence for 1-rescuer CPR.	• 1-Rescuer CPR Steps • Adult BLS Algorithm • Victim Assessment • Activate ER system and Get and AED • Open Airway and Check Breathing • Give 2 breaths • Pulse Check • Begin cycles of chest compressions and breaths	For consistency, the same type of Absorb activity will be applied to the 1-rescuer technique lesson as was used in the chest compression lesson.	For consistency, the same type of Do activity will be applied to the 1-rescuer technique lesson as was used in the chest compression lesson.	For consistency, the same type of Connect activity will be applied to the 1-rescuer technique lesson as was used in the chest compression lesson.	Captivate slides, graphics and video PDF for the Job Aid
					Additionally at the	Captivate

Topic	Objective	Content	Absorb	Do	Connect	Media
					end of the topic, the learners will be required to answer a question that will ask them if they have ever had to perform this on an actual patient and if so did they run into unexpected problems. If they haven't had to do this on a patient, they should answer which of the steps do they think will be most difficult to perform and why.	quiz capabilities The open response will be sent to the instructor in the CPR test center for evaluation.
CPR for Children	Using the approved modifications to CPR for children, clinical personnel will perform CPR for a child. The modifications include amount of air for breaths, depth of compressions, use 1 handed chest compressions for small children, what to do when the child's	• Why do we need to modify? • Definition of Child • Amount of air • Effective breaths • Depth of Compression • 1-handed chest compressions • CPR for low-heart rate • When to activate ER system • When to attach an	The lesson will begin with a video introducing an avatar member from the nursing staff. The avatar will identify the objective for the lesson. The avatar will "narrate" the rest of the lesson, which will contain some lecture and then graphics or video examples to	**Mini case study** The clinical avatar presents you with a scenario in which you come upon a child who is unconscious. The learner will be asked to choose from a set of possible steps of how to begin CPR for a child. If the correct answer is chosen then the learner is given feedback to let them	A job aid that contains the steps for child CPR will be provided. This will be a link at the end of the e-learning Child CPR topic. They can print this out and keep it with them. These job aids will also be posted on	Captivate slides, graphics and video PDF for the Job Aid

Topic	Objective	Content	Absorb	Do	Connect	Media
	pulse is less than 60 beats per minute, when to attach an AED and when the activate the ER response system.	AED • CPR steps for a child	show how to perform the steps for CPR for Children	know they have answered correctly and why. If they did not respond correctly then they are told the consequences of their actions (what happens to the victim) And they need to start over again. If they have two mistakes they must retake the Absorb activity. There is little room for error with someone's life.	the floors where they work.	
					Additionally at the end of the topic, the learners will be required to answer a question that will ask them what kinds of considerations should be taken into effect when performing CPR on a child (hysterical parents, age, infectious disease, and environment).	Captivate quiz capabilities The open response will be sent to the instructor in the CPR test center for evaluation.
CPR for Infants	Using the chest compression technique for infants, clinical personnel will	• Definition of infant • The importance of chest compressions	The lesson will begin with a video introducing an avatar member from	**Mini case study** The clinical avatar presents you with a scenario in which you	A job aid that contains the compression steps will be provided.	Captivate slides, graphics and video

Topic	Objective	Content	Absorb	Do	Connect	Media
	perform chest compressions for infants. This includes positioning hands for chest compressions, performing chest compressions at the right rate, with complete chest recoil and correct depth.	• Pediatric BLS algorithm • Chest Compression Technique • Chest Recoil • Compression Rate	the nursing staff. The avatar will identify the objective for the lesson. The avatar will "narrate" the rest of the lesson, which will contain some lecture and then graphics or video examples to show how to perform the steps.	come upon an infant who is not responsive. The learner will be asked to choose from a set of possible steps of how to begin chest compressions. If the correct answer is chosen then the learner is given feedback to let them know they have answered correctly and why. If they did not respond correctly then they are told the consequences of their actions (what happens to the victim) And they need to start over again. If they have two mistakes they must retake the Absorb activity. There is little room for error with someone's life.	This will be a link at the end of the e-learning Infant CPR topic. They can print this out and keep it with them. These job aids will also be posted on the floors where they work.	PDF for the Job Aid
	Using the airway and breath technique for infants, clinical personnel will demonstrate how to open an airway and give breath for infants. This includes performing the head tilt-chin lift,	• Performing the Head Tilt-Chin Lift • Why breaths are important for infants and children • Mouth-to-mouth and Nose-to-mouth	For consistency, the same type of Absorb activity as was used in the chest compression lesson will be applied to the airway and breath technique lesson.	For consistency, the same type of Do activity as was used in the chest compression lesson will be applied to the airway and breath technique lesson.	For consistency, the same type of Connect activity as was used in the chest compression lesson will be applied to the airway and breath technique lesson.	Captivate slides, graphics and video PDF for the Job Aid

Topic	Objective	Content	Absorb	Do	Connect	Media
	giving moth-to-mouth breaths to the victim and nose-to-mouth breaths to the victim.	breathing				
	Using the 1-Rescuer Infant CPR Sequence, clinical personnel will singly perform CPR for an infant. This includes identifying when to start CPR on a victim and showing the complete sequence for 1-rescuer CPR.	• 1-Rescuer Infant CPR Sequence • Victim Assessment • Open Airway and Check Breathing • Give 2 breaths • Pulse Check • Begin cycles of chest compressions and breaths • Activate the ER system	For consistency, the same type of Absorb activity as was used in the chest compression lesson will be applied to the 1-rescuer technique lesson.	For consistency, the same type of Do activity as was used in the chest compression lesson will be applied to the 1-rescuer technique lesson.	For consistency, the same type of Connect activity as was used in the chest compression lesson will be applied to the 1-rescuer technique lesson.	Captivate slides, graphics and video PDF for the Job Aid
					Additionally at the end of the topic, the learners will be required to answer a question that will ask them what kinds of ventilation with barrier devices should be used when performing CPR on an infant.	Captivate quiz capabilities The open response will be sent to the instructor in the CPR test center for evaluation.

ASSESSMENT STRATEGY

For the CPR Course, the assessment strategy will use the following assessment instruments:

Entry Skills Tests: The CPR Course will not use an Entry Skills Tests. The learners in this case should already be proficient with the Entry skills as outlined in the Entry Behaviors section.

Pre-Test: The CPR Course will use a Pre-Test due to the fact that this course is to recertify the clinical staff. Although this is a skill they are expected to know thoroughly they may not have performed it recently. Taking a pre-test can show them where they are weak or have forgotten steps. This can help to focus them on particular areas when they are taking the course again.

Sample Pre-Test Questions:

The pre-test will ask them to take the steps for each of the different types of CPR (adult, child and infant) and put them in the right order. Then five practice questions will be given. These will include a combination of multiple choice, fill in the blank and true and false and will cover any and all three topics within the course. After all of the questions have been answered, the learner will be told what they got correct and what they missed. A suggestion will be made to pay special attention to the areas they missed while taking the course.

Practice Tests: The CPR Course will use practice tests after each topic is completed. An objective test will be administered to measure whether the learner understands the new concepts and appropriate CPR sequence. Five to ten practice questions will be given after each module or topic section. These will include a combination of multiple choice, fill in the blank and true and false. Some questions will be based off a case study or after watching a video. After a learner enters their answer they will be told whether they were correct or not. If they are correct some additional reinforcing information will be given. If they were incorrect an explanation of why they were incorrect and what the correct answer is will be given.

The clinical staff must score 90% or above to continue to the next topic or they will be forced to take the topic over again. Additionally, there will be a pool of questions that will be shuffled so the learner won't be asked the same questions twice if they need to retake the topic and so they cannot give answers to other clinical staff.

Sample Practice Test Questions:

Infant CPR Practice Test

1. The correct rate for giving compressions to an infant is _____ compressions a minute.

Correct Answer: **100. You are correct!** When you give chest compressions, it is important to press deeply enough at a rate of about 100 compressions per minute and allow the chest to recoil completely.

Incorrect Answer: Sorry, but the correct answer is **100**. When you give chest compressions, it is important to press deeply enough at a rate of about 100 compressions per minute and allow the chest to recoil completely.

2. *The correct compression-ventilation ratio for 1-rescuer infant CPR is:*
    a.   100 compressions to 1 breath
    b.   60 compressions to 2 breaths
    c.   30 compressions to 2 breaths

Correct Answer: **C.** 30 Compressions to 2 breaths. The lone rescuer should use a universal compression-ventilation ratio of 30 compressions to 2 breaths when giving CPR to an infant, child or adult.

Incorrect Answer: Sorry, but **C** is the correct answer. 30 Compressions to 2 breaths. The lone rescuer should use a universal compression-ventilation ratio of 30 compressions to 2 breaths when giving CPR to an infant, child or adult.

3. *True or False: After reviewing this video did the rescuer perform the steps in the right order?*
    a.   *True*
    b.   *False*

Correct Answer: **B** Yes, the rescuer started to give breaths before they checked the airway. Checking the airway must be done first.

Incorrect Answer: Sorry, but **B** is the correct answer.   The rescuer started to give breaths before they checked the airway. Checking the airway must be done first.

Post-Tests: The CPR course will culminate with a post-test in the CPR Test Center, which is arranged by the learner on an appointment basis. This will take place with an instructor. The clinical staff must perform CPR on an adult, child and infant "dummies". The instructor has a rubric mandated by the state that they will use to judge proficiency. Once the staff member passes this test, the instructor will mark them as "complete" in the LMS for this course. They will then be considered to be re-certified in this area for another year.