

Part **7**

HeartCode® BLS Instructor-Led Hands-On Skills Session Lesson Plans

Precourse Preparation

Instructor Tips

- Prepare for your role as a BLS Instructor well. Review all course materials and anticipate questions or challenges that may arise during class. The time you invest in this part of your preparation is important to the overall success of every student.
- Refer to Part 2: Preparing for the Course for specific directions on preparing to teach blended-learning courses. Refer to Part 3: Teaching the Course for further instructions on using lesson plans.

30 to 60 Days Before Class

- Determine course specifics, such as
 - Your students' professions (in-hospital or out-of-hospital professionals) and how they'll use the skills taught in this course
 - The number of students
 - Any special equipment needed for the course
- Reserve the equipment you need for the course. Refer to Part 2: Preparing for the Course for a complete equipment list.
- Schedule a room that meets BLS Course requirements. Refer to Part 2: Preparing for the Course for details.
- Schedule additional instructors, if needed, depending on your class size.

At Least 3 Weeks Before Class

- Send participating HeartCode BLS students their precourse letter, including the course key for the online portion, course agenda, and student materials.
- Confirm additional scheduled instructors, if needed.
- Research local protocols and encourage students to know them before coming to class. This will help you answer students' questions during class. Refer to optional Lesson 9: Local Protocols Discussion in the HeartCode BLS Lesson Plans for more details and examples.

Day Before Class

- Confirm room reservations and ensure that all required equipment is available.
- Set up the room and make sure that all technology and equipment work. You can do this the day of class if the room is not accessible the day before.
- Coordinate all roles and responsibilities with any additional instructors to ensure efficiency and timing, per the course agenda.
- Ensure that all course paperwork is in order.

Day of Class

Arrive at the class location in plenty of time to complete the following:

- Locate the nearest AED in the building, review the emergency response plan, and confirm the emergency response number.
- Make sure that all equipment works and has been cleaned according to manufacturer instructions or your organization's standards.
- Have the video ready to play before students arrive.
- Distribute supplies to the students or set up supplies for students to collect when they arrive, with clear instructions on what they need.
- Greet students as they arrive to put them at ease, and direct them where to go.
- Make sure students complete the course roster as they arrive.
- Collect each student's certificate of completion for the online portion of HeartCode BLS.

Lesson 1

Course Introduction

5 minutes

Instructor Tips

- Advise students that the course is fast-paced and allows students to watch and practice their skills.
- Be familiar with the learning objectives and BLS Course content. It's critical that you know what you want to communicate, why it's important, and what you want to happen as a result.
- Prebrief the students. Explain that this is a safe space for learning and that mistakes are expected as part of the learning process. Students can practice skill repetition with your feedback to improve their performance. Remind students that they must demonstrate mastery of key resuscitation skills to successfully complete the course.
- Tailor the learning experience to students' real-world scope of practice, if possible. Consider the types of students, their settings, and the resources that are available to them. This is important to think about when selecting the in-hospital or out-of-hospital scenarios available during the course. Structure team training so that scenarios, team composition, and roles are relevant.
- Think about how you'll manage breaks during class. Consider using the time to establish rapport, get feedback, and answer questions students might feel too embarrassed to ask in front of everyone.



Discussion

- Introduce yourself and additional instructors, if present.
- Invite students to introduce themselves.
- Explain that the course is interactive. Refer to the following points (see detailed information for each throughout the instructor manual) for discussion with students:
 - Your role
 - Video-based learning
 - Review of each skill from the online portion of the course before skills practice
 - Practice while watching
 - Refer to Part 3: Teaching the Course for detailed information about practice while watching.
 - Skills test
- Ask students to speak to an instructor if they anticipate difficulties due to medical concerns, such as knee or back problems. Refer to Part 1: General Concepts for more about students with special needs.
- Explain the layout of the building, including bathrooms and emergency exits.
- Tell students the location of the nearest AED and the emergency response number.
- Describe the course agenda, including when you'll have breaks and when the class will end.
- Tell students to refer to the provider manual and BLS reference card throughout the course for supporting information. The BLS reference card is a quick reference for key BLS concepts.
- Remind students what they will review and practice from the online portion during the classroom portion of the course.

- For further detail on the video lessons to be shown during class, refer to the HeartCode BLS Agenda in Part 3: Teaching the Course.
- Remind students that to complete the course, they must
 - Pass the Adult CPR and AED Skills Test
 - Pass the Infant CPR Skills Test

Lesson 2

1-Rescuer Adult BLS

20 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students that they will be focusing on 1-rescuer adult BLS. At the end of this lesson, they will be able to

- Describe the importance of high-quality CPR and its impact on survival
- Apply the BLS concepts of the Chain of Survival
- Recognize the signs of someone needing CPR
- Perform chest compressions using correct hand placement at the correct rate and depth with chest recoil
- Demonstrate effective breaths using a pocket mask
- Perform high-quality 1-rescuer CPR for an adult
- Recognize signs of a heart attack
- Describe actions to help someone having a heart attack



Ask Students to Open the *BLS Provider Manual*

Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults. Additional provider manual resources are listed in the individual sections within this lesson.



Discussion: 1-Rescuer Adult BLS Skills

With HeartCode BLS, students are familiar with the skills of 1-rescuer adult BLS. Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults in the provider manual.

Before practicing, lead discussion of the following skills with students:

- **Scene safety and assessment:**
 - Verify that the scene is safe for you and the person.
 - Check for responsiveness. Tap the person's shoulder and shout, "Are you OK? Are you OK?"
 - If the person is not responsive, shout for nearby help.
 - Assess the person for the presence of a carotid pulse and normal breathing. This should be for at least 5 seconds but no more than 10 seconds.
 - Activate the emergency response system in your setting.
 - Get the AED. If someone else is available, have that person get it.
- **Adult compressions:**
 - Position yourself at the person's side.
 - Put the heel of one hand on the center of the person's chest, on the lower half of the sternum.
 - Put the heel of your other hand on top of the first hand.
 - Straighten your arms and position your shoulders directly over your wrists.

- Give chest compressions:
 - Press down at least 5 cm with each compression. Make sure you push straight down on the person's sternum.
 - Deliver compressions at a rate of 100 to 120/min.
 - Allow complete chest recoil after each compression without leaning on the chest between compressions.
 - Minimize interruptions in chest compressions, limiting any interruptions in chest compressions to less than 10 seconds.



Practice While Watching: Initial Steps of CPR

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Next, ask students to position themselves at the side of their manikins.
- Before playing the video, remind students of the following:
 - They will practice being the first rescuer on the scene checking for scene safety and assessing the person.
 - In addition, they will practice adult compressions, completing 5 sets of 30 compressions.
 - Emphasize core concepts: Use correct hand placement, push hard and fast, allow complete chest recoil after each compression, and minimize pauses in compressions.
- While the practice-while-watching video is playing, make sure to
 - Walk around the room and give students feedback on hand placement and compression depth and rate as needed.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Pause video if needed, to provide feedback to students.



Discussion: Open Airway and Pocket Mask

With HeartCode BLS, students are familiar with the skills of 1-rescuer adult BLS. Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults in the provider manual.

Before practicing, **discuss** the following for opening the airway and using a pocket mask:

- Position yourself at the person's side.
- Place the pocket mask on the person's face, using the bridge of the nose as a guide for correct position.
- Seal the pocket mask against the face:
 - Using your hand that is closer to the top of the person's head, place the index finger and thumb along the edge of the mask that is on the nose.
 - Place the thumb of your other hand along the edge of the mask that is on the chin.
- Place the remaining fingers of your second hand along the bony margin of the jaw and lift the jaw. Perform a head tilt–chin lift maneuver to open the airway.
- While you lift the jaw, press firmly and completely around the outside edge of the mask to seal the pocket mask against the face.
- Deliver each breath over 1 second, enough to make the person's chest rise.



Practice While Watching: Pocket Mask

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Next, ask students to position themselves at the side of their manikins.
- Before playing the video, help the students place the pocket mask correctly on the manikin.
 - Tell students to hold the mask firmly against the manikin's face, looking for visible chest rise.
 - Tell students they will practice using a pocket mask and complete 5 sets of 2 breaths.
 - Tell students if they do not see chest rise, they may need to repeat a head tilt–chin lift to open the airway.
- While the practice-while-watching video is playing, make sure to
 - Walk around the room and give students feedback on using the pocket mask, hand position, and breath delivery.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Pause video if needed, to provide feedback to students.



Practice While Watching: 1-Rescuer Adult BLS

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Next, ask students to position themselves at the side of their manikins.
- Before playing the video, remind students of the following:
 - They will practice the entire 1-rescuer adult BLS sequence and complete 5 sets of 30 compressions and 2 breaths after each set of compressions.
 - Remember to complete the steps for scene safety and assessment, adult compressions, and pocket mask.
 - Remind students they will be tested on this skill. Encourage students to review the BLS Adult CPR and AED Skills Testing Checklist found in the Appendix of the provider manual.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Coach students to perform high-quality CPR and minimize pauses in compressions.
 - Watch to ensure time between breaths and compressions are as short as possible.
 - Pause the video, if needed, to provide feedback to students.

Lesson 3

Bag-Mask Device and AED

10 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students that they will be focusing on using bag-mask devices and AEDs. At the end of this lesson, they will be able to

- Demonstrate effective ventilations with a bag-mask device
- Describe the importance of early use of an AED
- Demonstrate how to use an AED



Ask Students to Open the *BLS Provider Manual*

Students can refer to Part 3: BLS for Adults (particularly, Figure 4. Adult BLS Algorithm for Health Care Professionals) and Part 4: AED for Adults and Children 8 Years and Older. Additional provider manual resources are listed in the individual sections within this lesson.



Discussion: Bag-Mask Device

With HeartCode BLS, students are familiar with using a bag-mask device. Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults in the provider manual.

Before practicing, **discuss** the following for using a bag-mask device:

- Place the narrow end of the mask onto the bridge of the manikin's nose and lower the mask onto the manikin's face. Form a "C" with the thumb and index finger of one hand, and press down on the dome of the mask, toward the face, to further seal the rim of the mask.
- The remaining 3 fingers of that same hand should form an "E" to reach past the edge of the mask, along the bony rim of the jaw, to tilt the head back, lift the chin, and open the airway.
- Next, squeeze the bag with your other hand to deliver ventilations.



Practice While Watching: Bag-Mask Device

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Next, ask students to position themselves at the head of their manikins.
- Before playing the video, have the students practice the following:
 - E-C clamp technique
 - Opening the airway using the head tilt–chin lift maneuver in between each set of breaths
 - Delivering ventilations
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.

- Coach students on the E-C clamp technique and ensure correct finger position.
- Remind students to open the airway.
- Ensure you are seeing chest rise with each ventilation.
- Pause the video, if needed, to provide feedback to the students.



Discussion: AED

With HeartCode BLS, students are familiar with using an AED. Students can refer to Part 4: AED for Adults and Children 8 Years and Older in the provider manual.

Before students practice, **review** the following for using an AED:

- Explain and show how to use the AED trainer; remind students that it will not deliver a real shock.
- Describe the AED being used in class (example: What is the brand of the AED?).
- **Emphasize following the AED prompts**
- Students should follow the prompts of the AED they are using. Instructors should be aware that some AED steps outlined on the skills testing checklist might not be applicable to all devices.
- **Demonstrate the following AED practice, which students will then practice independently:**
 - Show students how to power on AED.
 - Show students AED pads and explain difference between adult and pediatric pads if available.
 - Show the students how to peel the backing from the AED pads.
 - Demonstrate appropriate pad placement. The top of the pad should be just under the clavicle. Place the second pad horizontally on the person's left lateral ribs. The middle of the pad should be below the axilla at the midaxillary line.
 - Remind students to follow their organizations protocol for removing chest hair.
 - Attach the AED connecting cables to the AED box (some are preconnected), if needed.
 - Demonstrate how to clear the manikin, during rhythm analysis, following AED prompts.
 - Demonstrate how to deliver shock to manikin, following prompts, and ensuring individuals are clear.
 - Tell students that, in a real-life situation, the shock will produce a sudden contraction of the person's muscles.
 - Immediately resume CPR, when AED prompts.



Students Practice: AED

Direct your students to have their AED trainers out and ready to use. Tell students they are going to practice using the AED.

Now, have the students practice while you walk around the room to ensure accuracy and answer questions. Students will follow these steps:

1. Open the carrying case. Power on the AED if needed.
 - Power on the AED.
 - Tell students that some devices will power on automatically when the lid or case is opened.
 - Follow the AED prompts for the next steps.
2. Attach AED pads to the patient's bare chest.
 - Choose adult pads (not child pads or a child system) for anyone 8 years of age and older.
 - Show students the pads and explain the difference between adult and pediatric pads if available.
 - Peel the backing from the AED pads.
 - Place the first pad vertically on the manikin's right upper chest with the top of the pad just under the clavicle. Place the second pad horizontally on the manikin's left lateral ribs. The middle of the pad should be below the axilla at the midaxillary line.
 - When walking around the room, assess appropriate pad placement on each of the student's manikins and give appropriate feedback.
 - Attach the AED connecting cables to the AED (some are preconnected) if applicable.
3. Clear the manikin and analyze the rhythm.
 - If the AED prompts you, clear the manikin during analysis. Be sure no one is touching the manikin, not even the rescuer in charge of giving breaths.
 - Ensure students are following the auditory prompts.
 - Some AEDs will tell you to push a button to allow the AED to begin analyzing the heart rhythm; others will do that automatically. The AED may take a few seconds to analyze.
 - The AED then tells you if a shock is needed.
4. If the AED advises a shock, it will tell you to clear the manikin.
 - Clear the manikin before delivering the shock; be sure no one is touching the manikin.
 - Loudly state a "clear the person" message, such as "Everybody clear" or simply "Clear."
 - Look to be sure no one is in contact with the manikin.
 - Press the Shock button.
5. The shock will produce a sudden contraction of the person's muscles.
6. If the AED prompts that no shock is advised, or after any shock is delivered, immediately resume CPR, starting with chest compressions.

Lesson 4

2-Rescuer Adult BLS

10 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on 2-rescuer adult BLS. At the end of this lesson, they will be able to

- Describe the importance of high-quality CPR and its impact on survival
- Apply the BLS concepts of the Chain of Survival
- Recognize the signs of someone needing CPR
- Perform high-quality 2-rescuer CPR for an adult
- Perform as an effective team member during multirescuer CPR



Ask Students to Open the *BLS Provider Manual*

Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults. Additional provider manual resources are listed in the individual sections within this lesson.



Discussion: 2-Rescuer Adult BLS

With HeartCode BLS, students are familiar with 2-rescuer adult BLS. Students can refer to Figure 4. Adult BLS Algorithm for Health Care Professionals in Part 3: BLS for Adults of the provider manual.

Before practicing, **discuss** the following for performing 2-rescuer adult BLS:

- Discuss the specific roles for each rescuer in the sequence. Explain that each student will get to practice each rescuer role.
 - **Rescuer 1 should**
 - Be positioned at the manikin's side
 - Compress the chest at least 5 cm
 - Compress at a rate of 100 to 120/min
 - Allow complete chest recoil after each compression without leaning on the chest between compressions
 - Minimize interruptions in compressions (trying to limit any interruptions in chest compressions to less than 10 seconds)
 - Use a compression-to-ventilation ratio of 30:2
 - Count compressions out loud
 - **Rescuer 2 should**
 - Be positioned at the manikin's head
 - Perform a head tilt–chin lift maneuver or jaw thrust
 - Use the E-C clamp technique when positioning a bag-mask device on the manikin's face

- Give ventilations with a bag-mask device, watching for chest rise and avoiding excessive ventilation
- Encourage Rescuer 1 to perform compressions that are deep enough and fast enough and to allow complete chest recoil after each compression



Practice While Watching: 2-Rescuer Adult BLS

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to position themselves at the side of their manikins.
 - Tell them that they will practice each role of the 2-rescuer adult CPR sequence. Assign students to play Rescuer 1 and Rescuer 2.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess Rescuer 1's hand position, compression rate and depth, and recoil.
 - Assess Rescuer 2's ventilations and E-C clamp technique.
- Pause the video, if needed, to provide feedback to students.



Students Practice: 2-Rescuer Adult BLS With AED

- After students complete the 2-rescuer CPR sequence in the practice-while-watching segment, have them remain in position by their manikins.
- Tell students that they will now be practicing the 2-rescuer adult BLS sequence, with an AED.
- Students can refer to the BLS Adult CPR and AED Skills Testing Checklist found in the Appendix of the provider manual. Remind students they will be tested on this.
- Before beginning, **discuss** the following with students:
 - Verify scene safety.
 - Check for responsiveness (tap and shout) and activate the emergency response system.
 - Assess for breathing and a pulse.
 - Begin high-quality CPR, starting with chest compressions.
 - Use the AED as soon as it is available.
 - Turn the AED on and follow the prompts.
 - Continue high-quality CPR, with one rescuer continuing CPR as second rescuer applies the AED pads.
- Instruct students to begin, observing them to ensure accuracy and answer questions:
 - Provide positive and corrective feedback.
 - Ensure students are following appropriate steps.
 - Activate the AED as soon as it arrives.
 - Correctly place the AED pads.
 - Follow the AED prompts.

Lesson 5

High-Performance Teams

20 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on high-performance teams. At the end of this lesson, they will be able to

- Describe the importance of high-quality CPR and its impact on survival
- Apply the BLS concepts of the Chain of Survival
- Perform high-quality CPR
- Perform as an effective team member during multirescuer CPR



Discussion: Team Dynamics and High-Performance Teams

With HeartCode BLS, students are familiar with team dynamics and high-performance teams. To review this lesson, students can refer to Part 5: Team Dynamics in the provider manual.

Before practicing, **discuss** the following:

- The roles of each member
 - Clear roles and responsibilities
 - Knowing your limitations
 - Constructive intervention (be tactful)
 - Team Roles:
 - Team Leader
 - Compressor
 - Airway
 - IV/IO/Medications
 - Monitor/Defibrillator
 - CPR Coach
 - Timer/ Recorder
- What to communicate
 - Knowledge sharing and frequently asking for observations
 - Summarizing and reevaluating, which can help respond to the patient's changing condition
- How to communicate
 - Closed-loop communication
 - Confirm order
 - Call people by their names
 - Confirm intervention complete
 - Clear messages

- Speak in a calm, confident manner
- Mutual respect
- Behave in a professional manner
- Use a friendly, controlled voice
- Avoid shouting or aggression
- Debriefing
 - Debrief together as a team
 - Debrief after a resuscitation attempt
 - Debriefing may improve team performance and patient outcomes after cardiac arrest
- CPR Coach
 - Studies have shown that resuscitation teams with a CPR Coach perform higher-quality CPR with higher CCF and shorter pause durations.
 - The CPR Coach focuses only on compressions and ventilation to ensure high-quality CPR.
 - The CPR Coach should be positioned next to the Defibrillator and in the direct line of sight of the Compressor.
 - Any health care professional can be a CPR Coach if they have a current BLS Provider card, understand the responsibilities of a CPR Coach, and demonstrate the ability to coach Compressors and Airway providers effectively to improve performance.
- Skills needed to achieve specific high-performance team metrics like CCF by eliminating the pauses commonly seen in a resuscitation attempt.
 - Hovering hands over the chest when compressions are paused
 - Switching Compressors every 2 minutes or whenever a Compressor is fatigued, with the second Compressor coming in behind the first
 - Using real-time feedback devices during CPR, or a metronome if a feedback device is not available
- CCF is the proportion of time that rescuers perform chest compressions during CPR. Shorter duration of interruptions in chest compressions is associated with a better outcome. The higher the CCF, the more likely the chance of survival. Targeting a high CCF of at least 60% is recommended. A goal of 80% is often achievable with good teamwork. Research shows that a 10% increase in CCF is roughly equal to an 11% increase in survival.
- In a 10-minute scenario, total chest compression time must be about 8 minutes to achieve an 80% CCF.
- Explain that BLS professionals are responsible for performing only the roles on a resuscitation team that are within their training and scope of practice. It is important, however, to understand all team roles to be an effective team member.

How Do I Measure CCF?

Option 1: Use 2 stopwatches.

1. Start one stopwatch once you have given the scenario to the team. Let it run continuously to the 10-minute mark (total resuscitation time) as a reminder to stop the case.
2. Use a second stopwatch to measure total compression time during the scenario. Start the stopwatch each time a Compressor starts chest compressions. Pause the stopwatch when the Compressor stops or when chest compressions are interrupted. Do this for each set of compressions during the entire scenario. Don't reset the stopwatch during the scenario; allow the stopwatch to continue counting up. This will give you the cumulative time that chest compressions were being performed during the scenario.
3. Convert the time on the second stopwatch to seconds (eg, 8 minutes = 480 seconds).
4. Divide the total compression time in seconds by the total resuscitation time in seconds (ie, 10 minutes = 600 seconds).
5. This will give you the CCF. For example, if the time on the second stopwatch is 520 seconds, divide by 600 (total resuscitation time): $520/600 = 0.8667$. Then, round to 2 places and convert to a percentage: 87%.

Option 2: Use a manikin that captures resuscitation data.



Students Practice: Team Activity

• Before the activity begins:

- Divide students into groups for the scenario. A minimum of 3 students per class is highly recommended to support team dynamics course objectives.
- Remember, this activity is supposed to be run by the students, while you observe.
- Assign team roles.
 - If students are in groups of 3, assign the following roles:
 - Compressor
 - Airway
 - Monitor/Defibrillator/CPR Coach
 - If students are in groups of 4, assign the following roles:
 - Team Leader
 - Compressor
 - Airway
 - Monitor/Defibrillator/CPR Coach
 - If students are in groups of 5, assign the following roles:
 - Team Leader
 - Compressor
 - Airway
 - Monitor/Defibrillator
 - CPR Coach

- If students are in groups of 6, assign the following roles:
 - Team Leader
 - Compressor
 - Airway
 - Monitor/Defibrillator
 - CPR Coach
 - Timer/Recorder
- Explain that after you read the scenario, students will begin the High-Performance Teams Activity, which will run for 10 minutes.
- You will evaluate the resuscitation, looking for high-quality CPR and ensuring that students enforce the principles of highly effective teams.
- Briefly remind students that you will be tracking CCF because limiting interruptions in chest compressions improves outcome.
- **To begin the activity, read this scenario to each team:**
 - “As part of a multirescuer emergency response team, you respond to a call about a 65-year-old woman who suddenly collapsed. Your team arrives within seconds after the incident, and you notice that a bystander is performing compression-only CPR.”
- **During the activity:**
 - Begin CCF tracking as soon as the Compressor begins chest compressions during CPR.
 - Coach students in teamwork throughout the activity. Monitor CPR performance to inform high-quality CPR coaching, including minimizing pauses in compressions during the use of the AED. Provide focused practice as needed.
 - Pay particular attention to the Compressor’s performance toward the end of each 2-minute rotation. Monitor for high-quality compressions of adequate rate and depth. Remind the Compressor to allow complete chest recoil after each compression without leaning on the chest between compressions.



Discussion: High-Performance Teams Activity Debriefing

- At the end of the scenario, debrief by asking team members what they thought went well and what could have been better.
 - Disclose the CCF and discuss any strategies for improvement.
 - Talk about whether the team maintained high-quality CPR.
 - Allow the team to lead the conversation; ask open-ended questions to facilitate discussion.
- Coach on improving communication with closed-loop communication principles.
 - The Team Leader gives a message, an order, or an assignment to a team member.
 - The team member gives a clear response and makes eye contact to confirm that they heard and understood the message.
 - The Team Leader listens for confirmation of task performance from the team member before assigning another task.

Lesson 6

Special Considerations

5 minutes

Review the following learning objective with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on special considerations for BLS. At the end of this lesson, they will be able to

- Demonstrate providing effective breaths or ventilation



Ask Students to Open the *BLS Provider Manual*

Students can refer to Part 8: Alternate Ventilation Techniques.



Discussion: Breaths and Ventilations

With HeartCode BLS, students are familiar with giving breaths and ventilations.

Before practicing, **discuss** the following for providing breaths to a person who is unconscious but still has a pulse:

- Adults: Give 1 ventilation every 6 seconds.
- Children and infants: Give 1 breath every 2 to 3 seconds.
- Give each ventilation over 1 second, ensuring that each ventilation results in visible chest rise.
- Check the pulse every 2 minutes.



Practice While Watching: Breaths and Ventilations

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to position themselves at the head of their manikins with their bag-mask device.

Lesson 7

Child BLS

8 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on child BLS. At the end of this lesson, they will be able to

- Describe the importance of high-quality CPR and its impact on survival
- Apply the BLS concepts of the Chain of Survival
- Recognize the signs of someone needing CPR
- Perform chest compressions using correct hand placement at the correct rate and depth with chest recoil
- Demonstrate effective breaths or ventilations
- Describe how to use an AED for a child
- Perform high-quality 2-rescuer CPR for a child



Ask Students to Open the *BLS Provider Manual*

Flag items you want students to look at with you, such as specific algorithms, sections, etc. Additional provider manual resources are listed in the individual sections within this lesson.



Discussion: Child BLS Lesson Overview

Before beginning, **discuss** the following with students:

- If you are using adult manikins for the child BLS practice, inform students that they may need to use 2 hands while practicing CPR because it's difficult to compress the adult manikin with 1 hand.
- Remind students that the technique used for child CPR will depend on the size of the child and the physical ability of the person performing compressions.



Discussion: 2-Rescuer Child BLS

With HeartCode BLS, students are familiar with giving breaths and ventilations. For more information, students can refer to Part 8: Alternate Ventilation Techniques in the provider manual.

Before practicing, **discuss** the following for performing 2-rescuer child BLS:

- Tell students that they will practice each role of the 2-rescuer child BLS sequence. Discuss whether they are using a child or adult manikin. Explain that each student will get to practice each rescuer role. **Review** the roles with students.
 - **Rescuer 1 should**
 - Be positioned at the manikin's side
 - Compress at least one third the AP diameter of the chest, approximately 5 cm
 - Compress at a rate of 100 to 120/min

- Allow complete chest recoil after each compression without leaning on the chest between compressions
- Minimize interruptions in compressions, limiting any interruptions in chest compressions to less than 10 seconds
- Use a compression-to-ventilation ratio of 15:2
- Count compressions out loud
- **Rescuer 2 should**
 - Be positioned at the manikin's head, to maintain an open airway
 - Perform a head tilt–chin lift maneuver or jaw thrust
 - Give ventilations with a bag-mask device, watching for chest rise and avoiding excessive ventilation
 - Encourage Rescuer 1 to perform compressions that are deep enough and fast enough and to allow complete chest recoil after each compression
 - Use a compression-to-ventilation ratio of 15:2



Practice While Watching: 2-Rescuer Child BLS

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to position themselves at the side of their manikins.
 - Ask students to assign themselves to Rescuer 1 and 2 roles, noting they will switch.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess Rescuer 1's hand position, compression rate and depth, and recoil.
 - Assess Rescuer 2's ventilations and E-C clamp technique, watching for chest rise.
 - Assess limits in interruptions in chest compressions to less than 10 seconds.
 - Pause the video, if needed, to provide feedback to students.

Lesson 8

Infant BLS

17 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on infant BLS. At the end of this lesson, they will be able to

- Describe the importance of high-quality CPR and its impact on survival
- Apply the BLS concepts of the Chain of Survival
- Recognize the signs of someone needing CPR
- Perform chest compressions using correct hand placement at the correct rate and depth with chest recoil
- Demonstrate effective ventilations with a bag-mask device
- Describe how to use an AED for an infant
- Perform high-quality 2-rescuer CPR for an infant



Discussion: Infant Compressions

Before practicing, **review** the following for performing infant compressions:

- Place the infant on a firm, flat surface.
- Place the heel of 1 hand or 2 thumbs in the center of the infant's chest, just below the nipple line, on the lower half of the sternum. **Demonstrate** both techniques to the students, letting them know they will be tested on both.
- Push hard and fast at a depth of at least one third the AP diameter of the chest, approximately 4 cm. Deliver compressions at a rate of 100 to 120/min.
- Allow complete chest recoil after each compression.
- Minimize interruptions in compressions, limiting any interruptions in chest compressions to less than 10 seconds.



Practice While Watching: Infant Compressions

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to place their infant manikin on a firm, flat surface.
 - Remind students they will be using the heel-of-1-hand technique for this practice.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess student's hand position, compression rate and depth, and recoil.
 - Assess limits in interruptions in chest compressions to less than 10 seconds.
 - Pause the video, if needed, to provide feedback to students.



Discussion: Infant Bag-Mask Device

Before practicing, **review** the following for using a bag-mask device for infants:

- Make sure you select the appropriate mask size for infants. The mask must cover the infant's mouth and nose completely, without covering the eyes or extending below the bottom edge of the chin. It may be helpful to **demonstrate** how the bag-mask device fits for the infant manikin in class.
- Position yourself at the infant's head and use the E-C clamp technique to hold the mask against the infant's face.
- Perform the head tilt–chin lift maneuver to open the airway and create a seal.
- Don't hyperextend the infant's neck because tilting or extending an infant's head beyond the neutral, or sniffing, position may block the infant's airway.
- Squeeze the bag with your other hand for 1 second, watching for chest rise.

Discuss with students what to do if you do not see chest rise. Students will need to adjust the mask, reposition the head and neck, or administer a larger amount of air and try ventilating again while watching for chest rise.



Practice While Watching: Bag-Mask Device for Infants

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to position themselves at head of their infant manikin, with their bag-mask device.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess students' E-C clamp hand position and placement of the mask on the infant's face.
 - Assess students' ventilation delivery, watching for chest rise.
 - Pause the video, if needed, to provide feedback to students.



Discussion: 2-Rescuer Infant BLS

Before practicing, **review** the following for performing 2-rescuer infant BLS:

- Tell students that they will practice each role of the 2-rescuer infant BLS sequence. Explain that each student will get to practice each rescuer role. Review the roles with students.
 - **Rescuer 1 should**
 - Check for scene safety, assess responsiveness, and activate the emergency response system
 - Position themselves at the side of the infant
 - Check for brachial pulse and breathing
 - Use the 2 thumb–encircling hands technique for providing chest compressions
 - Compress at least one third the AP diameter of the infant's chest, approximately 4 cm

- Compress at a rate of 100 to 120/min
- Allow complete chest recoil after each compression without leaning on the chest between compressions
- Minimize interruptions in compressions, limiting any interruptions in chest compressions to less than 10 seconds
- Use a compression-to-ventilation ratio of 15:2
- Count compressions out loud
- **Rescuer 2 should**
 - Check for scene safety
 - Position themselves at the head of the infant manikin
 - Perform a head tilt–chin lift maneuver or jaw thrust
 - Give ventilations with a bag-mask device, watching for chest rise and avoiding excessive ventilation
 - Use a compression-to-ventilation ratio of 15:2
 - Encourage Rescuer 1 to perform compressions that are deep enough and fast enough and to allow complete chest recoil after each compression



Practice While Watching: 2-Rescuer Infant BLS

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to position themselves at the side and head of the manikin.
 - Ask students to assign themselves to Rescuer 1 and 2 roles, noting they will switch.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess Rescuer 1's thumb position, compression rate and depth, and recoil.
 - Assess Rescuer 2's ventilations and E-C clamp technique, watching for chest rise.
 - Assess limits in interruptions in chest compressions to less than 10 seconds.



Students Practice: Infant High-Performance Teams Activity (Optional)

For additional student practice with high-performance teams, students can complete the high-performance teams activity by using an infant scenario. Consider your students' patient population. If students work with the pediatric population, practice of high-performance teams using an infant manikin is essential. Refer to Lesson 5: High-Performance Teams in the BLS Lesson Plans for more on how to complete this activity with the following scenario:

"As part of a multirescuer emergency response team, you respond to a call from a parent who says her 9-month-old infant started having breathing difficulties after feeding."

Lesson 9

Local Protocols Discussion (Optional)

8 minutes

- Across the country, EMS systems develop treatment protocols based on local need, preference of administration, and medical direction. In some cases, these protocols differ from established national standards, so this course may occasionally direct students to act in ways that are not consistent with their local protocols. The AHA does not want to conflict with established local protocols.
- When you lead this discussion, make sure you know what the local protocols are. If you are a member of the local EMS system, you should already be aware of local protocols, but if you are not, study them before the course so that you can have a meaningful discussion.
- Although the AHA does not endorse a particular protocol or strategy, it does issue evidence-based guidelines, which are relevant and broadly applicable. These guidelines are developed by experts in the field, who use a rigorous scientific process. This discussion is a chance for students to articulate and practice AHA skills within the context of their local protocols.



Discussion

Lead students through a discussion about high-performance teams and local protocols. Use these questions to help guide this discussion:

- Does your system currently use a high-performance team approach to resuscitation?
- How can you incorporate high-performance teamwork into your department's protocols?
- What are some potential challenges to incorporating high-performance teamwork into your protocols?
- What are some potential challenges to high-performance teamwork in terms of location, patients, or equipment?
- How does the local protocol compare and contrast with the Adult BLS Algorithm for Health Care Professionals?

The following examples show some common differences between local protocols and what is taught in the course. **Use these sections only if students ask questions about these examples.**

What to say when local protocols for chest compressions differ from what the course teaches:

In the course, you learned to do 30 high-quality chest compressions and then 2 breaths. The use of asynchronous breaths with uninterrupted chest compressions may be used if your local protocol allows.

- The important factors in this lesson are to perform the compressions at a rate of 100 to 120/min, at least 5 cm in depth, while allowing the chest to recoil completely after each compression.
- The next compressor should be immediately ready to switch roles to minimize interruption in compressions.

Studies show that patients who receive high-quality CPR and a CCF of at least 60% have a much better chance of survival.

What to say when local protocols for AED use differ from what the course teaches:

In the course, you learned to use the AED immediately after it arrives. This could differ from your local protocol, which may have you use the AED only after you do 200 chest compressions (or 2 minutes of CPR) or a variation of this.

- Follow the local protocol.
- Continue high-quality chest compressions up to the point of allowing the AED to analyze.
- Immediately begin chest compressions after a shock is delivered or the AED states, "No shock advised."
- Keep in mind that as time to defibrillation increases, the chance of survival decreases.

The greatest chance of survival from cardiac arrest is found when a patient receives high-quality CPR and early defibrillation.

What to say when local protocols for role assignment differ from what the course teaches:

In the course, you learned about the different roles that out-of-hospital professionals may use (Compressor, Timer/Recorder, etc). However, your workplace protocol may differ in the number and naming of these BLS roles.

- Follow the local protocol.
- Know your potential assignments ahead of time to reduce confusion during a real event.
- Make sure that all roles and responsibilities are clear so that interruptions in chest compressions are minimized and teamwork is smooth and efficient.
- It is critical that high-performance teams practice in the same way that they will perform in real situations.
- Appoint a Team Leader who oversees the event, assesses the efficacy of efforts, and makes changes when resuscitation performance is less than adequate.
- To optimize efforts in the future, provide a debriefing after each course scenario and after each real resuscitation attempt.

What to say when local protocols for the use of a bag-mask device differ from what the course teaches:

In the course, you learned about providing ventilation with a bag-mask device. Your local protocol may call for chest compressions only, 200 chest compressions before breaths, use of a bag-mask device with a face mask for a short time until a supraglottic airway can be placed (as soon as possible), or a variation of these.

- Follow the local protocol.
- Provide only enough volume with each ventilation to make the chest rise (do not deliver large breaths that can potentially inhibit venous blood flow back into the chest).
- When delivering ventilation during CPR with an advanced airway, provide 1 breath every 6 seconds or 10 breaths per minute. Excessive ventilation can increase intrathoracic pressure, impede venous return, and potentially reduce cerebral blood flow.
- Do not interrupt chest compressions for extended lengths of time to place an advanced or supraglottic airway.

Lesson 10

Relief of Choking

5 minutes

Review the following learning objectives with students before beginning the lesson.

Learning Objectives

Tell students they will be focusing on relief of choking. At the end of this lesson, they will be able to

- Describe how to relieve a foreign-body airway obstruction for an adult, a child, and an infant



Ask Students to Open the *BLS Provider Manual*

Flag items you want students to look at with you, such as specific algorithms, sections, etc. Additional provider manual resources are listed in the individual sections within this lesson.



Discussion: Relief of Choking

With HeartCode BLS, students are familiar with relief of choking. For more information, students can refer to Part 11: Choking Relief for Adults, Children, and Infants in the provider manual, particularly, Figure 50. Infant Foreign-Body Airway Obstruction Algorithm.



Discussion: Infant Choking

After the video ends, **discuss** the following for relief of infant choking:

- Tell students that they will practice the relief of choking on a responsive infant and complete 1 set of 5 back blows and 5 chest thrusts. Before showing the practice-while-watching video, discuss the following with your students:
 - Kneel or sit with the infant in your lap.
 - Hold the infant facedown, with the head slightly lower than the chest, resting on your forearm. Support the infant's head and jaw with your hand. Avoid compressing the soft tissues of the infant's throat. Rest your forearm on your lap or thigh to support the infant.
 - Using the heel of your hand, deliver 5 back blows forcefully between the infant's shoulder blades. Deliver each slap with enough force to dislodge the foreign body.
 - After delivering 5 back blows, place your free hand on the infant's back, supporting the back of the infant's head with the palm of your hand. The infant will be cradled adequately between your 2 forearms, with the palm of one hand supporting the face and jaw while the palm of the other hand supports the back of the infant's head.
 - Turn the infant over while carefully supporting the head and neck. Hold the infant faceup, with your forearm resting on your thigh. Keep the infant's head lower than the trunk.
 - Provide up to 5 quick downward chest thrusts in the middle of the chest, over the lower half of the sternum (the same as for chest compressions during CPR). Deliver chest thrusts using the heel of one hand at a rate of about 1 per second with enough force to dislodge the foreign body.
 - Repeat the sequence of 5 back blows and chest thrusts until the object is removed or the infant becomes unresponsive.
 - If the infant becomes unresponsive, start CPR with the additional step of checking the airway for a foreign object after each set of compressions



Practice While Watching: Infant Choking

- **Play the practice-while-watching video once through before the students practice along with it.** This helps prepare the students for what they will be practicing.
- Before playing the video:
 - Ask students to kneel or sit with the infant manikin in their lap.
 - Give students time to familiarize themselves with holding and turning over the infant manikin.
 - Remind students they will be practicing the relief of choking on a responsive infant, completing sets of 5 back blows and 5 chest thrusts.
- While the practice-while-watching video is playing:
 - Walk around the room and give students feedback.
 - Focus your feedback on what you want rather than what you don't want the student to do. Always state feedback in a positive tone.
 - Assess how students are holding the infant manikin.
 - Assess students' delivery of back blows and chest thrusts.
- When the practice session is complete, ask students to return to their seats for the conclusion of the course.

Lesson 11

Conclusion

5 minutes

Instructor Tips

- When summarizing what was covered in the course, allow students to lead the discussion. Ask 1 or 2 students what they observed or learned during the course.
- Explain to students the importance of skills practice on an ongoing basis. Evidence shows that when people take standardized resuscitation courses, whether online or in person, their skills degrade over time. Give students clear directions on specific actions to take for further study, including AHA resources for postclassroom training.



Discussion

To conclude the course, **discuss** the following with students:

- Thank students for their participation.
- Summarize what students learned during the course. Refer to the HeartCode BLS Agendas in Part 3: Teaching the Course.
- Ask students if they have any questions before skills testing.
- Remember: Students taking HeartCode BLS will complete their evaluation form during the online portion of the course, before the classroom portion.

Lesson 12

Skills Test

40 minutes

Instructor Tips

- For skills testing, be prepared and organized by reviewing the skills testing checklists before class. Have all materials ready to properly test students on every step.
- Make sure students review the skills testing checklist before skills testing.



Discussion: Adult CPR and AED Skills Test

Before the Adult CPR and AED Skills Test, read the following script aloud to each student or to the whole class at once:

"This test is like a real emergency: you should do whatever you think is necessary to save the person's life. You will have to determine for yourself what you need to do. For example, if you check for a response on the manikin and there is no response, then you should do whatever you would do for a person who is not responding. I will read a short scenario to you, but I can't answer any questions. You can treat me like another health care professional who has arrived with you and tell me to do something to help you. If you make a mistake or forget to do something important, don't stop. Just do your best to correct the error. Continue doing what you would do in an actual emergency until I tell you to stop. Do you have any questions before we start?"



Skills Test: Adult CPR and AED

- Refer to the BLS Adult CPR and AED Skills Testing Checklist in Part 4: Testing for directions on how to test students on adult BLS skills. Check off each skill as the student demonstrates competency per the critical skills descriptors.
- After starting, if the student asks any questions about BLS skills or sequences, do not answer. Rather, tell the student, "Do what you think is best right now." If the student asks questions about what to do with the manikin, say, "Check the manikin yourself and do what you think is needed to save a life." If the student seems unsure, reiterate that he or she will be assessing the manikin and doing whatever is necessary.



Discussion: Infant CPR Skills Test

Before the Infant CPR Skills Test, read the following script aloud to the student or to all students at once:

"This test is like a real emergency: you should do whatever you think is necessary to save the person's life. You will have to determine for yourself what you need to do. For example, if you check the response on the manikin and there is no response, then you should do whatever you would do for a person who is not responding. I will read a short scenario to you, but I can't answer any questions. You can treat me like another health care professional who has arrived with you and tell me to do something to help you. If you make a mistake or forget to do something important, don't stop. Just do your best to correct the error. Continue doing what you would do in an actual emergency until I tell you to stop. Do you have any questions before we start?"



Skills Test: Infant CPR

- Refer to the BLS Infant CPR Skills Testing Checklist in Part 4: Testing for directions on how to test students on infant BLS skills. Check off each skill as the student demonstrates competency per the critical skills descriptors.
- After starting, if the student asks any questions about BLS skills or sequences, do not answer. Rather, tell the student, “Do what you think is best right now.” If the student asks questions about what to do with the manikin, tell the student, “Check the manikin yourself and do what you think is needed to save a life.” If the student seems unsure, reiterate that he or she will be assessing the manikin and doing whatever is necessary.

Remediation

For students who need remediation, follow these steps, and refer to Lesson 13: Remediation in the HeartCode BLS Lesson Plans:

- Determine where the student is having trouble during their Adult CPR and AED Skills Test or Infant CPR Skills Test.
- If needed, replay sections of video or practice skills to reinforce learning.
- Retest skills as necessary.
- Some students may need additional practice or to repeat the course to demonstrate skills competency and receive a course completion card.

Lesson 13

Remediation

10 minutes

Instructor Tips

- Use the formal remediation lesson if a student did not pass the skills testing during class.
- For further detail on remediation and retesting students, refer to Part 1: General Concepts.
- As an instructor, you will need to determine which section of the course the student is having trouble with.



Play Video(s)

- Replay instruction and/or practice-while-watching segments of the applicable videos as needed to reinforce learning and for the student to have additional practice.
- Repeat practice until the student feels comfortable and is ready to move forward with the skills test.
 - Some students may need additional practice or to repeat the course to demonstrate skills competency and receive a course completion card.
- Formal remediation should occur if all boxes on the skills testing checklist are not checked as complete.



Skills Test

Retest BLS skills as necessary by using the skills testing checklists. Refer to Lesson 12 in the HeartCode BLS Lesson Plans for additional instructions on administering the skills tests.

Postcourse

Immediately After the Course

At the end of each class:

- Collect, organize, and check all course paperwork for completeness.
- Rearrange the room.
- Clean and store equipment.
- Fill out International Training Center course report forms.
- Read and consider comments from course evaluations.
- Conduct a debriefing with assisting staff.
- Issue eCards according to International Training Center policy. If you are unsure of the policy, check with the International Training Center Coordinator.

Reminder: To ensure that students receive their course completion cards within 20 business days after completing a class, submit the paperwork to your International Training Center as soon as possible after the class.