

# **American Heart Association**

## **Basic Life Support for Healthcare Providers**

**Pretest**

**ANNOTATED ANSWER KEY**

**February 2001**

**This examination to be used only as a  
*PRECOURSE TEST*  
for BLS for Healthcare Providers Courses**

## Annotated Answer Key

### BLS for Healthcare Providers Course Written Examination Pretest

1. While at work in a hospital you find an adult victim who has collapsed. No one is available to help. After you ensure that the scene is safe, what should you do next?
  - a. Check for unresponsiveness; if the victim is unresponsive, activate the emergency response system (or phone 911) and get the AED if available
  - b. Phone 911 (or activate the emergency response system), then wait outside to direct the emergency responders
  - c. Open the airway with a tongue-jaw lift and perform 2 finger sweeps to check if food is blocking the airway
  - d. Perform CPR for 1 minute, then phone 911

**The correct answer is a.**

Your first action should be to determine if the person is unresponsive; if the victim is an unresponsive adult you should activate the hospital emergency response system. If emergency equipment (including an AED) is available, you should get it at the same time you activate the emergency response system.

Answer b is incorrect because after you activate the emergency response system you should return to the collapsed victim and perform CPR until the emergency response team arrives.

Answer c is incorrect because finger sweeps are indicated for relief of foreign-body airway obstruction (FBAO). You have no indication that the collapsed victim has an FBAO.

Answer d is incorrect because you should not perform CPR without first assessing the victim, and you should not delay activating the emergency response system for an unresponsive adult victim.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 1: Chain of Survival, pages 5-8, and Chapter 6: The Sequence of BLS, pages 65-81*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: Chain of Survival, pages 3-6, and Chapter 2: Steps of CPR, pages 18-25*

2. You work with an overweight 55-year-old dentist with no known history of heart disease. He begins to complain of sudden, severe, "crushing" pain under his breastbone, in the center of his chest. The pain has lasted more than 5 minutes. What problem should you think of right away, and what should you do?
- a. Heartburn; tell him to take an antacid
  - b. Angina; phone his personal physician
  - c. Heart attack; phone 911
  - d. Arrhythmia; drive him to an Emergency Department

**The correct answer is c.**

This man has no known heart disease, so you should phone 911 (or the emergency response system) immediately. If he had a history of heart disease and was taking nitroglycerin, you could suggest that he take up to 3 nitroglycerin tablets to see if they had any effect on the pain.

Answer a is incorrect because symptoms of a heart attack are often dismissed as heartburn. You should not delay phoning 911 or other emergency response number. The risk of arrhythmias and death is highest in patients with myocardial infarction (heart attack) during the first hour after the onset of symptoms—this is the time when the victim is most in need of EMS support.

Answer b is incorrect because a call to a personal physician will take unnecessary time and delay transportation to an Emergency Department. EMS personnel are prepared to treat sudden arrhythmias that may develop during transport, and they can provide prearrival notification to the receiving hospital to speed care at the hospital after the victim arrives.

Answer d is incorrect for 2 reasons. First, the victim is demonstrating "red flag" warning signs of a heart attack. Second, the safest and fastest transport to an Emergency Department is provided by EMS personnel. If you were to drive the victim, you would not be able to provide (1) emergency care to the victim while you were driving, (2) prearrival notification to the receiving hospital, or (3) triage of the victim to identify the medical facility most appropriate for his needs.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 3: ACS and Myocardial Infarction, pages 25-30, particularly Critical Role of Early EMS Activation, page 27*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: Warning Signs, pages 6-8*

3. You witnessed the collapse of a 45-year-old man. You are now performing CPR after sending someone to phone 911. You have done your best to ensure that the first 2 links in the Chain of Survival have been completed immediately. What is the third link in the chain, which will have the greatest effect on increasing this man's chance of survival?
- a. Arrival of paramedics who will administer drugs
  - b. Transportation of the man to a hospital
  - c. Arrival of a rescuer with a defibrillator
  - d. Arrival of EMS personnel who can do CPR

**The correct answer is c.**

The combination of immediate CPR and prompt defibrillation provides the best possibility of survival from sudden cardiac arrest. CPR will keep oxygen-rich blood flowing to the heart and brain until the defibrillator is used to convert the cardiac rhythm to a perfusing rhythm. Although time to defibrillation is the single most important determinant of survival from sudden cardiac arrest, both CPR and defibrillation are important links to maximize the victim's chance of survival.

Answer a is incorrect because pharmacologic therapy has not been shown to improve survival from sudden cardiac arrest. Advanced life support is not the third link in the Chain of Survival, and it does not have the greatest effect on survival from sudden cardiac arrest.

Answer b is incorrect because although EMS transport is important, it is not the third link in the Chain of Survival. Early defibrillation has the greatest effect on the victim's survival.

Answer d is incorrect because you have already started CPR. The highest rate of survival from sudden cardiac arrest is associated with bystander CPR (the second link in the Chain of Survival) in combination with defibrillation (the third link).

**Read more about it:**

*BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 5-8, and Chapter 7: Principle of Early Defibrillation, pages 92-93*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 3-7, Chapter 3: Link Between Early Defibrillation and Survival From Cardiac Arrest, page 38*

4. You have been talking with a 60-year-old man. He is alert and has been conversing normally. All at once he complains of a sudden weakness on one side of his face and in one arm. He is also having trouble speaking. What is the most likely cause of his problem?
- A seizure
  - A heart attack
  - A stroke
  - Diabetic coma

**The correct answer is c.**

This scenario describes several of the classic signs of an acute stroke (sudden numbness or weakness on one side of the body, facial droop or weakness, and difficulty speaking). Recognition of the early signs and symptoms of stroke is important. If this patient has suffered an acute ischemic stroke and receives immediate medical attention, he may be eligible for fibrinolytic therapy ("clotbusters"), which can reduce disability from stroke. But the drugs must be administered within 3 hours of the onset of stroke symptoms.

Answer a is incorrect because no signs or symptoms of a seizure are mentioned in this scenario—the man has been alert and conversing normally with you.

Answer b is incorrect because a heart attack does not produce weakness in the arm and face with speech abnormalities. The major symptom of a heart attack is severe chest pain, pressure, or discomfort.

Answer d is incorrect because a diabetic coma produces decreased responsiveness or unresponsiveness. Hypoglycemia, however, can cause confusion and focal neurologic deficits.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 4: Prehospital Management of Stroke, pages 40-43*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: Warning Signs, pages 10-12*

5. You remove a 3-year-old from the bottom of the shallow end of a swimming pool. You find that she is limp and unresponsive. No other person is available to help. When should you phone 911?
- After you have given the child 1 minute of CPR
  - As soon as you remove the child from the pool
  - When you see that after several minutes of CPR there is no response
  - After giving a few ventilations and before beginning chest compressions

The correct answer is a.

Cardiopulmonary arrest in children and near-drowning victims of all ages is most commonly associated with lack of oxygen. The lone rescuer must begin the steps of CPR to deliver oxygen to the child immediately, then phone 911 after about 1 minute of CPR. Of course if someone else is available to help, that person can phone 911 immediately.

Answer b is incorrect because phoning 911 will delay getting oxygen to the little girl. She needs immediate CPR. If she is not breathing when you open her airway, you should begin rescue breathing as soon as possible, even in the pool.

Answer c is incorrect because doing several minutes of CPR will delay getting emergency help. If the child fails to respond to about 1 minute of CPR, advanced life support is needed immediately.

Answer d is incorrect because you should phone 911 after about 1 minute of rescue support.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Epidemiology of Cardiopulmonary Arrest, pages 135-136, and Activate EMS System, pages 145-146*

*Fundamentals of BLS for Healthcare Providers, Chapter 4: Pediatric Chain of Survival, pages 58-60, and Chapter 5: The ABCs of CPR, pages 81-84*

6. You are a medical advisor helping set up a public access defibrillation (PAD) program at a local shopping mall. The mall has purchased an AED. The mall personnel director asks, "If AEDs are so 'foolproof,' why do the security guards have to learn CPR and be trained to use the AED?" Which of the following is the best explanation for the need to train rescuers to perform CPR and use an AED?
- Rescuers don't need to learn CPR if they can use an AED
  - Rescuers need to be able to verify the rhythm analyzed by the AED
  - Rescuers need to know when and how to use the AED safely and to perform the steps of CPR for unresponsive victims who are not in cardiac arrest
  - Rescuers will need to learn to maintain the AED and repair it if something goes wrong

The correct answer is c.

The best survival from sudden cardiac arrest will result from provision of immediate bystander CPR and defibrillation within minutes. To do this the rescuer must know the signs of cardiac arrest that indicate the need to use the AED. The rescuer should also know what to do in "special situations" (eg, a victim with an implantable pacemaker or a transdermal medication patch or a child under 8 years of age), how to troubleshoot the device if the AED gives a "check electrode" message, and what to do if no shock is indicated.

Answer a is incorrect because rescuers should learn how to perform CPR for unresponsive victims who are not in cardiac arrest and for victims of cardiac arrest who do not have a shockable rhythm.

Answer b is incorrect because the rescuer should not attempt to verify the AED rhythm analysis. AEDs are more accurate than the average layperson in interpreting adult cardiac rhythms and determining if they are shockable or not shockable.

Answer d is incorrect because AEDs require little maintenance. Rescuers need only look for the "ready to use" signal on the AED.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 5-8, and Chapter 7: Principle of Early Defibrillation, pages 92-93, and Structure and Function of AEDs, pages 93-98*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 3-7, and Chapter 3: Link Between Early Defibrillation and Survival From Cardiac Arrest, page 38, and How AEDs Work, pages 39-42*

7. You are responding to an emergency call for a child who was found unresponsive in her bed with no sign of trauma. How should you open her airway?
- a. Place your fingers in her mouth and pull forward on the lower jaw
  - b. Do the jaw-thrust maneuver
  - c. Tilt her head and lift her chin
  - d. Pull her tongue forward

**The correct answer is c.**

The most common cause of airway obstruction in an unconscious person is the tongue. The head tilt–chin lift is the best way to open the airway for an unresponsive infant, child, or adult.

Answer a is incorrect because this method of airway opening is recommended when the victim has become unresponsive with a foreign-body airway obstruction. This method does not open the airway in a manner that allows delivery of rescue breaths if necessary.

Answer b is incorrect because the jaw thrust is used when trauma is suspected. It is not as easy to perform as the head tilt–chin lift, and it does not make it easy to hold the airway open if rescue breaths are needed.

Answer d is incorrect because it is difficult to pull the tongue forward, and the head tilt–chin lift is the best method of opening the airway.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Airway, pages 146-147*

*Fundamentals of BLS for Healthcare Providers, Chapter 5: The Steps of CPR for Infants and Children, pages 83-87*

8. Before providing rescue breathing for an unresponsive victim, you must check for breathing. You do this by listening and feeling for airflow through the victim's nose or mouth and by
- Looking into the victim's mouth to see if anything is blocking the airway
  - Shaking or tapping the victim's shoulder to stimulate him to breathe
  - Checking the pupils
  - Looking to see if the chest rises (and falls) as the victim breathes

The correct answer is d.

Look to see if the victim's chest is rising as the victim breathes in. You should watch the chest while you listen and feel for airflow through the victim's nose and mouth.

Answer a is incorrect because you should not waste time looking into the victim's mouth unless you suspect a foreign-body airway obstruction.

Answer b is incorrect because you have already checked for responsiveness—the victim has been described as unresponsive.

Answer c is incorrect because checking the reaction of the victim's pupils to light will not tell you whether the victim is breathing adequately.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Breathing: Assessment, page 68*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, pages 18-23, and Foundation Facts box: Agonal Breathing and Respiratory Arrest, page 23*

9. Healthcare providers are cautioned to look for "adequate" breathing when they open the airway and check for breathing in an unresponsive victim. What is the best explanation for the requirement that the healthcare provider look for more than just the presence or absence of breathing?
- Healthcare providers often mistake effective breaths for absence of breaths and they start rescue breathing unnecessarily
  - Most adult victims of cardiac arrest actually stop breathing before the cardiac arrest, and the respiratory arrest precipitates the cardiac arrest
  - Many victims of sudden cardiac arrest actually have a foreign body in the airway, which will require that you check and confirm that breathing is adequate
  - Some victims may continue to demonstrate agonal or gasping breaths for several minutes after a cardiac arrest, but these breaths and breaths that are too slow or too shallow will not maintain oxygenation.

The correct answer is d.

Agonal or gasping breaths and breaths that are too slow or too shallow are not effective for maintaining oxygenation. The healthcare provider should be prepared to support the patient's breathing if it is inadequate before the patient develops respiratory arrest.

Answer a is incorrect because there is no evidence that healthcare providers initiate rescue breathing unnecessarily. The textbook does not say this. Also, the rescuer needs to look for *effective* breathing.

Answer b is incorrect because most adult victims of cardiac arrest do not suffer a respiratory arrest before the cardiac arrest. Respiratory arrest does appear to precede cardiac arrest in infants and children.

Answer c is incorrect because there is no evidence that victims of cardiac arrest commonly have undetected foreign-body airway obstruction. The textbook stresses the need for *effective* breathing.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Breathing, Assessment, page 68*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, pages 18-23, and Foundation Facts box: Agonal Breathing and Respiratory Arrest, page 23*

10. You are in the hospital cafeteria, where a woman appears to be in distress. She is grasping her throat with both hands. What should you do to find out if she is choking?
- Give her 5 back blows
  - Give her 5 abdominal thrusts
  - Ask her "Are you choking?" and look for any response**
  - Shake her and shout "Are you OK?"

**The correct answer is c.**

If the woman has severe or complete foreign-body airway obstruction, she will not be able to speak or cough forcefully. She is already demonstrating the "universal choking sign."

Answer a is incorrect because you should not intervene until you confirm that the woman has a severe obstruction of the airway as evidenced by an inability to speak, a weak, ineffective cough, or other significant signs. Back blows are not recommended in the BLS for Healthcare Providers Course.

Answer b is incorrect because although abdominal thrusts are the appropriate intervention for responsive victims with severe or complete foreign-body airway obstruction, you should not intervene until you are certain that severe or complete FBAO is present.

Answer d is incorrect because if the woman indicates that the answer to your question is no, you will still need to ask if she is choking.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 8: Relief of FBAO, pages 124-126*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: How to Recognize FBAO, pages 12-13, and Chapter 2: First Aid for Severe or Complete FBAO, pages 30-31*

11. You are providing rescue breathing for a child using a bag-mask device. What action will confirm that each of your rescue breaths is adequate?
- Determining the child's weight, calculating the tidal volume, and delivering that amount of air
  - Observing the child's chest rise with each rescue breath**
  - Choosing the correct size bag-mask device, which will ensure delivery of adequate rescue breaths
  - Delivering breaths quickly with high peak inspiratory pressures

**The correct answer is b.**

If the chest does not rise during rescue breathing, ventilation is ineffective.

Answer a is incorrect because it is impossible to quantify the volume of air delivered with either mouth-to-mask or bag-mask ventilation.

Answer c is incorrect for several reasons. Bag-mask ventilation is a difficult skill that requires practice. You can select the correct bag and mask size, but if you fail to open the child's airway, if you do not make a good seal between the child's face and the mask, or if you fail to squeeze the bag properly, ventilation may be inadequate.

Answer d is incorrect because you should provide slow breaths. Rapid, forceful delivery of breaths may produce gastric inflation, which can lead to difficulty with ventilation and result in vomiting and aspiration.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Provide Rescue Breathing, pages 148-152, particularly Evaluate Effectiveness of Breaths Delivered, page 148, and Bag-Mask Ventilation, pages 151-152*

*Fundamentals of BLS for Healthcare Providers, Chapter 5: The Steps of CPR for Infants and Children, pages 82-92, particularly page 87, To perform rescue breathing for a child, and Using a Bag-Mask Device, page 90*

12. A 3-year-old child is eating in the hospital playroom. She suddenly begins coughing repeatedly. Her cough then quickly becomes soft and weak. She is making high-pitched noises while breathing in and seems to be in respiratory distress. Her skin is a bluish color. What is the most likely cause of her distress?
- a. An acute asthma attack causing a swelling of the airway
  - b. Severe or complete airway obstruction with inadequate air exchange
  - c. Infected and swollen vocal cords
  - d. A seizure from a possible head injury

**The correct answer is b.**

You should recognize that a weak, ineffective cough and high-pitched breathing noises indicate severe or complete airway obstruction. The suddenness of the child's distress and the fact that it developed during eating suggest a foreign-body airway obstruction, possibly from food lodged in the airway.

Answer a is incorrect because an asthma attack does not typically produce signs of airway obstruction that are this acute in onset.

Answer c is incorrect because the signs of an airway infection are more likely to develop gradually with other signs of infection (fever, hoarseness, signs of congestion).

Answer d is incorrect because nothing in this scenario suggests the development of a seizure or a head injury.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Signs of Severe or Complete FBAO (Choking), page 142, particularly Critical Concepts box and text, and Priorities for Teaching Relief of Severe or Complete FBAO, page 161, particularly Critical Concepts box*

*Fundamentals of BLS for Healthcare Providers, Chapter 4: Choking, Strangulation, and Suffocation, pages 66-69, particularly Critical Concepts box, page 69, and Signs of Breathing Emergencies, page 68*

13. You are performing rescue breathing with a bag-mask device and oxygen for a nonbreathing child with signs of circulation. How often should you provide rescue breaths for the child?
- Approximately once every 3 seconds (20 breaths per minute)
  - Approximately once every 4 seconds (15 breaths per minute)
  - Approximately once every 5 seconds (10 to 12 breaths per minute)
  - Approximately once every 10 seconds (6 breaths per minute)

**The correct answer is a.**

Rescue breaths for infants or children should be delivered over 1½ to 2 seconds. Adequate exhalation time is required.

Answer b is incorrect because a rescue breathing rate of 15 times per minute (once every 4 seconds) is too slow for infants or children.

Answer c is incorrect because this rescue breathing rate is appropriate for adults but too slow for infants or children.

Answer d is incorrect because this breathing rate is too slow for a victim of any age.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Breathing, pages 147-154, particularly page 154*

*Fundamentals of BLS for Healthcare Providers, Chapter 5: The Steps of CPR for Infants and Children, pages 82-87, particularly Foundation Facts box, page 85, and Circulation, letter d, page 85*

14. You are performing 2-rescuer CPR. You are positioned at the victim's head. When you initially open the unresponsive victim's airway and find that he is not breathing adequately, how many initial breaths should you give?
- 1
  - 2
  - 3
  - 4

**The correct answer is b.**

The sequence of CPR for 1 or 2 rescuers is identical, but the tasks are shared.

Answer a is incorrect because you provide 2 rescue breaths at the beginning of the CPR sequence, and you also provide 2 breaths after every 15 compressions provided by your partner. Delivery of 1 rescue breath is not part of the sequence for 1- or 2-rescuer CPR for the adult victim.

Answers c and d are incorrect because nowhere in the sequence are 3 or 4 rescuer breaths recommended.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Provide Rescue Breathing, pages 69-75, and 1- and 2-Rescuer CPR, pages 80-81*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, pages 18-23, particularly page 23*

15. You are at your grandmother's house. Your grandmother is unresponsive and has stopped breathing. You are giving her mouth-to-mouth breathing. Which of the following statements is the best explanation for the positive effects of rescue breaths?
- a. Rescue breaths help overcome any airway obstruction that may be blocking the airway
  - b. Rescue breaths will maintain a normal arterial oxygen content
  - c. Rescue breathing might help defibrillate the heart
  - d. Rescue breaths are a quick, effective way to provide oxygen to the victim

**The correct answer is d.**

The rescuer's exhaled air contains enough oxygen to support the victim's vital functions at least for a short time. Each rescue breath must be sufficient to inflate the victim's lungs adequately.

Answer a is incorrect because there is no evidence that giving mouth-to-mouth breathing will clear an airway obstruction.

Answer b is incorrect because rescue breathing will maintain only a minimal acceptable level of oxygen; it will not maintain normal oxygenation and arterial oxygen content for the victim.

Answer c is incorrect because there is no evidence that rescue breathing will defibrillate the heart.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Breathing, pages 68-74, particularly Mouth-to-Mouth Breathing, page 69*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, pages 18-23, particularly Foundation Facts box, page 21*

16. A 52-year-old man collapses at the fitness center after a workout. To determine whether he is in cardiac arrest, you should check for signs of circulation. Part of this assessment is the pulse check. What is the preferred site for a pulse check in this adult victim?

- a. At the radial artery of the wrist
- b. At the brachial artery of the arm
- c. At the carotid artery of the neck
- d. On the chest over the heart

**The correct answer is c.**

In the hospital the femoral artery is an acceptable alternative, but that artery is not readily accessible in a fully-clothed adult male outside the hospital.

Answer a is incorrect because the radial artery is a peripheral (not a central) artery and is not the recommended site to palpate a pulse.

Answer b is incorrect because the brachial artery is the recommended artery to palpate for the infant victim, not the adult victim.

Answer d is incorrect because you may feel activity over the heart (precordial activity) that does not confirm either the presence or absence of a pulse.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Assessment, Check for Signs of Circulation, pages 76-77*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, No. 4, Circulation, pages 18-23, and Figure 6, page 21*

17. Where should you place your hands on the chest of a victim when you are performing chest compressions?
- On the top half of the breastbone
  - Over the heart, on the left side of the chest at the nipple line
  - Over the very bottom of the breastbone, on the xiphoid
  - On the lower half of the breastbone, at the nipple line in the center of the chest

**The correct answer is d.**

The ECC Guidelines 2000 indicate that the lower half of the breastbone is the appropriate place for your hands when you perform adult chest compressions. The correct hand position can also be located by finding the middle of the chest, between the nipples.

Answer a is incorrect because you should not compress over the top half of the breastbone. The correct position is over the bottom half of the breastbone.

Answer b is incorrect because if you compress over the heart, you are pressing over the ribs. Compressions in this location will not produce forceful compressions and may cause rib fractures and injuries.

Answer c is incorrect because you should avoid pressing over the xiphoid (the very bottom of the breastbone) because this structure is not as strong as the sternum.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Chest Compressions, pages 77-80, particularly pages 78-79, and Figures 16 and 17*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, No. 4, Circulation, pages 18-23, particularly Figure 7*

18. You are performing CPR on an unresponsive man who was found in his bed. What is your ratio of compressions to ventilations?
- 15 compressions, then 2 ventilations
  - 5 compressions, then 1 ventilation
  - 10 compressions, then 2 ventilations
  - 15 compressions, then 5 ventilations

**The correct answer is a.**

The ratio of 15 compressions to 2 ventilations is maintained whether 1- or 2-rescuer CPR is performed.

Answer b is incorrect because the ratio of 5 compressions to 1 ventilation is recommended for pediatric (infant and child) CPR, not adult CPR.

Answer c is incorrect because a ratio of 10 compressions to 2 ventilations would not provide a sufficient series of uninterrupted chest compressions (to improve coronary perfusion pressure).

Answer d is incorrect because a ratio of 15 compressions to 5 ventilations would interrupt chest compressions for too long a time to provide the 5 breaths.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Chest Compressions, pages 77-80, particularly page 77, bottom right column*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, No. 4, Circulation, pages 18-23, particularly page 22*

19. What is the correct rate or speed you should use to perform compressions for an adult victim of cardiac arrest?
- A rate of 60 times per minute
  - A rate of 80 times per minute
  - A rate of 100 times per minute**
  - A rate of 120 times per minute

**The correct answer is c.**

Note that this question does not ask how many actual compressions are provided in 1 minute but rather asks about the speed of the compressions given. The ECC Guidelines 2000 recommend a rate of about 100 compressions per minute.

Answer a is incorrect because a rate of 60 compressions per minute is too slow. With pauses for ventilation you would deliver too few compressions for the adult victim.

Answer b is incorrect because a rate of 80 compressions per minute is too slow. Research has shown that survival following resuscitation is increased if the adult victim receives more chest compressions per minute.

Answer d is incorrect because the rate is too fast. This rate exceeds the recommended compression rate for infants, children, and adults.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Chest Compressions, pages 77-80, particularly page 77, top right column*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, No. 4, Circulation, pages 18-23, and FYI box, page 23*

20. A neighbor runs to you with his limp 5-year-old child. You verify that the child is unresponsive and send the neighbor to phone 911. You open the child's airway, determine that he is not breathing, and deliver 2 effective rescue breaths. You check for signs of circulation and find that the child has no signs of circulation (including no pulse). Which of the following choices best describes the technique you should use to perform chest compressions on this child?
- Use both hands, one on top of the other
  - Use the heel of one hand
  - Use the tips of 2 fingers
  - Use the palm and fingers of one hand

**The correct answer is b.**

You should place your heel over the lower half of the child's sternum and compress at a rate of about 100 times per minute.

Answer a is the correct technique for chest compressions for adult victims, but it usually generates too much force for compressions for children.

Answer c is correct for the lone rescuer providing chest compressions for an infant victim but not for an adult victim.

Answer d is incorrect because the palm and fingers of one hand will extend over the chest of a child, producing force on the entire chest wall rather than producing a downward thrust on the sternum. This technique may injure the child and will probably not generate adequate blood flow during compressions.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Chest Compressions, pages 155-159, particularly page 158*

*Fundamentals of BLS for Healthcare Providers, Chapter 5: Chest Compressions, pages 86-87, particularly page 87*

21. You and a colleague have responded to a 911 call to attempt resuscitation of an unresponsive man who was found in a chair. After laying the victim supine on a hard surface, you open the airway and check for breathing. When you find no normal breathing you deliver 2 effective breaths. Next you check for signs of circulation and find no signs of circulation. What should you and your partner do next?
- Attach an AED (if available) or begin chest compressions and cycles of compressions and ventilations
  - Deliver 5 abdominal thrusts
  - Check for signs of circulation again
  - Reposition the airway and reattempt rescue breaths

**The correct answer is a.**

Once you determine that the victim has no signs of circulation and is in cardiac arrest, the treatment of choice is the AED. You should determine if the victim has a "shockable" rhythm and provide defibrillation as soon as possible. If an AED is not yet available, you and your colleague should perform chest compressions (and cycles of compressions and ventilations) until the AED arrives.

Answer b is incorrect because abdominal thrusts are indicated for an obstructed airway, and you have delivered 2 effective rescue breaths, making it unlikely that the victim's airway is obstructed.

Answer c is incorrect because you should not double-check for signs of circulation—you should trust your assessment and proceed. Do not delay defibrillation!

Answer d is incorrect because this is the procedure to follow if your initial attempts at rescue breaths are not successful. These steps do not follow the pulse check, however. There is no point in repeating steps already accomplished. Do not delay defibrillation!

**Read more about it:**

*BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 5-8, and Chapter 7: Principle of Early Defibrillation, pages 92-93, and Two-Rescuer AED Sequence of Action, pages 102-104.*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: AHA Adult Chain of Survival, pages 3-7, and Chapter 3: Link Between Early Defibrillation and Survival From Cardiac Arrest, page 38, and Sequence of Action for Use of an AED by 2 Rescuers, pages 44-47, particularly No. 5, page 45.*

22. You are alone when you see a man collapse. You confirm that he is unresponsive and phone the emergency response number. There is no AED in sight. You return to the man and perform the steps of CPR. You open the airway and find that he has only agonal respirations. You deliver 2 effective breaths and check for signs of circulation. There are no signs of circulation, so you begin chest compressions. When should you recheck for signs of circulation?
- After each compression-ventilation cycle
  - After the first compression-ventilation cycle
  - After about 5 minutes of CPR
  - After the first 4 cycles of 15 compressions and 2 ventilations and every few minutes thereafter

**The correct answer is d.**

A reassessment of the victim should be done after approximately the first minute of CPR (4 cycles of CPR take about 1 minute) and then every few minutes after that.

Answer a is incorrect because a check after each cycle will interrupt CPR too frequently.

Answer b is incorrect because a check after the first cycle will interrupt the CPR attempt when you have just begun.

Answer c is incorrect because 5 minutes is too long a time to wait to reassess the victim. You should perform periodic reassessments—do not wait until EMS personnel arrive.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Circulation, Assessment, pages 75-77, and 1- and 2-Rescuer CPR, pages 80-81, particularly Monitoring the Victim, page 81*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: The Steps of CPR, pages 18-23, particularly No. 5, page 23, and CPR Performed by 2 Rescuers, page 24*

23. Which of the following most accurately characterizes when you should start chest compressions?
- a. As soon as you find that there are no signs of circulation
  - b. After you have reassessed the victim's breathing
  - c. After giving the 2 initial ventilations
  - d. Whenever you find an unresponsive person

**The correct answer is a.**

Remember the ABCs: you must first open the airway (A), then check for breathing and give rescue breaths (B) before you check for circulation (C). You should begin chest compressions when you find that there are no signs of circulation.

Answer b is incorrect because you should open the airway, check for breathing, and provide rescue breathing before you check for signs of circulation. You should not reassess the victim's breathing.

Answer c is incorrect because after you give 2 initial ventilations, you should check for signs of circulation before you begin chest compressions or attach an AED. You should not perform chest compressions or attach an AED unless the victim has no signs of circulation (including no pulse).

Answer d is incorrect because once you determine that the victim is unresponsive, you should open the airway, check for breathing, and if the victim is not breathing adequately, provide 2 rescue breaths. Then after delivery of the 2 rescue breaths, you check for signs of circulation.

***Read more about it:***

*BLS for Healthcare Providers, Chapter 6: Circulation, Assessment, pages 75-77*

*Fundamentals of BLS for Healthcare Providers, Chapter 2: Steps of CPR, Circulation, pages 21-22*

24. When you perform CPR, how do your chest compressions and rescue breathing help the victim of sudden cardiac arrest?
- a. CPR decreases the need for coronary artery bypass
  - b. CPR forces the heart in ventricular fibrillation to return to a normal heart rhythm
  - c. CPR has no effect on survival
  - d. Immediate CPR provides a flow of oxygen-rich blood to the heart and brain and "buys time" until defibrillation

**The correct answer is d.**

CPR does not maintain normal cardiac output, but it does support delivery of oxygen to the heart and brain until defibrillation and advanced care can restore normal heart action. Thus it "buys time." Victims of cardiac arrest who receive bystander CPR are twice as likely to survive as are victims who do not receive bystander CPR.

Answer a is incorrect because there is no relationship between performance of CPR and the likelihood that a victim will require coronary artery bypass surgery.

Answer b is incorrect because CPR cannot convert ventricular fibrillation into a perfusing rhythm—only a defibrillator can do that.

Answer c is incorrect because CPR increases survival at any collapse-to-defibrillation interval.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 6: Chest Compressions, pages 77-78, and Chapter 7: Principle of Early Defibrillation, page 92*

*Fundamentals of BLS for Healthcare Providers, Chapter 1: The Chain of Survival, The Second Link: Early CPR, page 5, and Chapter 3: The Link Between Early Defibrillation and Survival From Cardiac Arrest, page 38*

25. **A 7-year-old boy is struck by a car in front of your house. You find him unresponsive and bleeding from a wound on his forehead. How should you open his airway?**
- a. By tilting his head and lifting his chin
  - b. Jaw thrust with cervical spine immobilization**
  - c. By sweeping out his mouth and pulling forward on his tongue
  - d. By not moving him at all because he might have a broken neck

**The correct answer is b.**

Whenever you suspect that an unresponsive victim has suffered a head or neck injury (this child was struck by a car and has a visible head wound), you should immobilize the cervical spine and open the airway without moving the victim's head or neck. Open the victim's airway with the jaw-thrust maneuver while maintaining cervical spine immobilization.

Answer a is incorrect because you cannot perform a head tilt without moving the victim's neck, and you should not move this child's head or neck.

Answer c is incorrect because the tongue-jaw lift is used to look for a foreign object. The jaw thrust is the preferred technique to open the airway for victims of trauma. You should immobilize the cervical spine when you perform the jaw thrust. This answer is also incorrect because you do not perform blind finger sweeps in infants or children even if foreign-body airway obstruction is present.

Answer d is incorrect because you need to open the airway of the unresponsive victim.

**Read more about it:**

*BLS for Healthcare Providers, Chapter 9: Airway, pages 146-147, and BLS in Special Situations, page 164*

*Fundamentals of BLS for Healthcare Providers, Chapter 5: The Steps of CPR for Infants and Children, pages 82-84, and Chapter 6: BLS in Special Situations, Cardiac Arrest Associated With Trauma, page 104*