

CHAPTER 9

Airway Management

HANDOUT 9-1: Evaluating Content Mastery Student's Name

EVALUATION

CHAPTER 9 QUIZ

Write the letter of the best answer in the space provided.

- _____ 1. The first step of emergency care in the patient with inadequate breathing is:
- A. checking for the patient's pulse.
 - B. manually stabilizing the cervical spine.
 - C. opening and maintaining the patient's airway.
 - D. looking for and controlling severe bleeding.
- _____ 2. Signs of inadequate airway include:
- A. wheezing, crowing, or gurgling noises.
 - B. cyanosis of the lips, earlobes, or nail beds.
 - C. the patient being unable to speak in full sentences.
 - D. all of the above.
- _____ 3. During your assessment of a 54-year-old male patient, you find that he is not breathing; your next step should be to:
- A. check for a pulse, and look for severe bleeding.
 - B. confirm that the airway is actually open.

C.begin providing artificial ventilations to the patient.

D. begin chest compressions.

_____ 4. Your 24-year-old female patient has fallen from the roof of her house and is unconscious. The best method of opening her airway is the:

A. head-tilt, chin-lift maneuver. **C.** head-tilt, neck-lift maneuver.

B. jaw-thrust maneuver. **D.** tongue-jaw lift maneuver.

_____ 5. Oropharyngeal airways can be used on unconscious patients, except those who:

A. are in cardiac arrest.

B. have a gag reflex.

C. are under 8 years old.

D. have a contagious respiratory disease.

_____ 6. If you do not have the proper size oropharyngeal airway to fit your patient:

A. use the next larger size. **C.** do not use one.

B. use the next smaller size. **D.** use either a smaller or a larger one.

_____ 7. The nasopharyngeal airway is popular because it:

A. comes in more sizes than the oropharyngeal airway.

B. often does not stimulate a gag reflex.

C. can be used even if clear (CSF) fluid is seen in the nose or ears.

D. is made of rigid clear plastic, which is less likely to cause bleeding.

_____ 8. Which of the following is true when suctioning a patient's airway?

A. Never suction for longer than one minute.

B.Suction only as the catheter is going into the mouth.

C.BSI precautions are not necessary unless blood is seen.

D. Suction longer than 15 seconds if patient continues to vomit.

_____ **9.** The most popular type of suction tip used in the pre-hospital setting is:

A. flexible suction catheter.

B. French catheter device.

C. rigid pharyngeal tip (Yankauer).

D. nasal trumpet device.

_____ **10.** Nasopharyngeal airways must be lubricated to ease insertion; you should use:

A. petroleum jelly.

B.any petroleum-based lubricant, such as WD-40.

C. any silicone-based lubricant.

D. any water-based lubricant.

_____ **11.** One method of determining which size oropharyngeal airway to use is by:

A.comparing it to the diameter of the patient's little finger.

B.measuring from the corner of the patient's mouth to the tip of the earlobe on the same side.

C.use the largest airway that will fit into the patient's mouth.

D.make a visual comparison between the patient and the airway and pick the one that seems closest.

_____ **12.** Try to limit suctioning to no longer than:

- A.** 1 minute. **C.** 10 seconds.
B. 30 seconds. **D.** 45 seconds.

REINFORCEMENT

IN THE FIELD

Review the following real-life situation. Then answer the questions that follow.

You and your EMT partner, Rachel, are assigned to a suburban station on a cold January morning. At 11:40 A.M., you are dispatched to an apartment building for a breathing problem. You arrive at the building about eight minutes later and are met by the patient's wife, who is quite anxious. You put on your personal protective equipment, get the ambulance cot and your equipment, and follow the woman to the sixth floor of the building. On the way up in the elevator, the patient's wife tells you her husband, John, is having a very hard time breathing, and he looks a little blue.

You arrive at the apartment and find your patient, a 48-year-old male, unconscious on the floor. His skin is pale, his lips are cyanotic, and you cannot seem to hear much air movement as he breathes. You introduce yourself and Rachel to the patient as you begin assessing his condition. His wife tells you that he has had asthma for most of his life. He usually uses an inhaler, but ran out of the medicine about three days ago. His breathing got worse two days ago, when the elevator was not working and he had to climb up the six floors to his apartment. You attempt to insert an oral airway but he gags. You then insert a nasal airway, which he tolerates, and begin to ventilate the patient with a bag-valve mask attached to high concentration oxygen. His blood pressure is 98/72, his pulse is 140, and his respirations are 40 per minute. You decide that John needs immediate transport to the hospital, about 25 minutes away and you use your portable radio to request an ALS rendezvous.

1. When you walked into the apartment and saw your patient, what was your general impression, and why?
2. Why was this patient considered a high priority for immediate transport?
3. What was his level of consciousness using the AVPU scale?
4. Why was an ALS rendezvous requested for this patient?
5. How might the patient's condition worsen en route to the hospital?

CHAPTER 9 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. Despite all other patient care delivered, no patient will survive without a(n) _____.
2. The EMT's chief responsibilities are finding and correcting immediately _____ - _____ problems.
3. Minimal or uneven chest movements, diminished breath sounds, and noisy breathing are signs of _____.
4. The two procedures commonly used for opening a patient's airway are the _____ - _____, _____ - _____ maneuver if no trauma is suspected, and the _____ - _____ maneuver, if head, neck, or spine injury is suspected.
5. The most common impediment to an open airway is the _____.
6. Use an airway adjunct on all _____ patients who do not exhibit a _____.
7. When measuring an oropharyngeal airway to determine the correct size to use in your patient, measure from the _____ of the patient's _____ to the _____ of the patient's _____ on the same side of the face.
8. Lubricate the outside of a nasopharyngeal airway with a(n) _____.

based lubricant.

9. The rule is try to limit suctioning to no longer than _____ seconds, unless patient is still vomiting, and then the EMT must _____ suctioning.
10. If an unconscious patient gags when the insertion of an oral airway is inserted, the EMT should stop and attempt to insert an _____ instead.

AIRWAY LISTING

Complete the following lists.

1. List five steps in determining whether a patient's airway is adequate.

2. List four *general* procedures to secure an airway.

AIRWAY TRUE OR FALSE

Indicate if the following statements are true or false by writing T or F in the space provided.

- _____ 1. The nose, mouth, pharynx, and trachea are all parts of the respiratory system.
- _____ 2. Abdominal breathing is a sign of inadequate airway in an adult.
- _____ 3. Head, neck, or spinal injury should be suspected in any unconscious trauma patient.
- _____ 4. The head-tilt, chin-lift maneuver should be used to open the airway of a patient with a suspected neck injury.
- _____ 5. When using the head-tilt, chin-lift maneuver to open a patient's airway, place your fingertips on the bony part of the chin, not the soft tissues under the lower jaw.
- _____ 6. When opening an unconscious patient's airway, you may need to insert your thumb into the patient's mouth.
- _____ 7. When using the jaw-thrust maneuver to open a patient's airway, stabilize the patient's head with your knees.
- _____ 8. If the chest does not rise and fall during BVM ventilation, you should reposition the head to ensure an open airway.
- _____ 9. If your patient does not tolerate an oropharyngeal airway at your first attempt, re-open the airway and insert it more aggressively.
- _____ 10. To ease insertion of a nasopharyngeal airway, it should be lubricated with petroleum jelly.

Chapter 9 Answer Key

HANDOUT 9-1: Chapter 9 Quiz

1. C
2. D
3. C
4. B
5. B
6. C
7. B
8. D
9. C
10. D
11. B
12. C

HANDOUT 9-2: In the Field

1. Your general impression would be poor. He has an altered mental status and is in severe respiratory distress.
2. Any patient with breathing difficulty is considered a high priority.
3. The patient is responsive to painful stimuli because he still has a gag reflex.
4. An ALS rendezvous was requested due to the real possibility that his condition could worsen, requiring a higher level of treatment. The paramedics could establish an IV line for medica-

tions, if needed, intubate if necessary, and administer medication in the form of a breathing treatment while en route.

5. The patient could go into respiratory or cardiac arrest.

HANDOUT 9-3: Chapter 9 Review

1. open airway
2. life-threatening
3. inadequate breathing
4. head-tilt, chin-lift; jaw-thrust
5. tongue
6. unconscious; gag reflex
7. corner; mouth; tip; earlobe
8. water
9. 15; continue
10. nasal airway

HANDOUT 9-4: Airway Listing

1.
 - Look for adequate and equal expansion of both sides of the chest with inhalation.
 - Listen for air entering and leaving the nose, mouth, and chest.
 - Feel for air moving out of the nose or mouth.
 - Check for typical skin coloration—there should be no blue or gray colorations.
 - Note the rate, rhythm, quality, and depth of breathing typical for a person at rest.

2.
 - Open the airway.
 - Insert an airway adjunct.
 - Suction the patient.
 - Place the patient in recovery position

HANDOUT 9-5: Airway True or False

1. T
2. T
3. T
4. F
5. T
6. F
7. F
8. T
9. F
10. F

CHAPTER 10

Respiration and Artificial Ventilation

HANDOUT 10-1: Evaluating Content Mastery Student's Name

EVALUATION

CHAPTER 10 QUIZ

Write the letter of the best answer in the space provided.

- _____ 1. The reduction of breathing to the point where oxygen intake is inadequate to support life is called:
- A. respiratory arrest. C. respiratory compromise.
B. respiratory failure. D. respiratory constriction.
- _____ 2. Signs of inadequate breathing include:
- A. wheezing, crowing, or gurgling noises.
B. cyanosis of the lips, earlobes, or nail beds.
C. the patient being unable to speak in full sentences.
D. all of the above.
- _____ 3. A 45-year-old is suffering from an acute asthma attack. You expect the patient to have:
- A. increased tidal volume. C. increased dead space.
B. decreased tidal volume. D. decreased dead space.
- _____ 4. Which of the following methods for providing ventilatory assistance is considered most effective?

- A. Two-person bag-valve mask technique with high-flow supplemental oxygen
- B. Mouth-to-mouth using oxygen
- C. One-person bag-valve mask technique
- D. Pocket face mask without oxygen

_____ 5. Signs of inadequate artificial ventilation of an adult patient include:

- A. a heart rate that returns to normal.
- B. failure of the patient's skin color to improve.
- C. the patient's chest rising and falling with each ventilation.
- D. a ventilation rate of approximately 12 per minute.

_____ 6. If oxygen is connected to a pocket face mask, the setting on the oxygen tank regulator should be set to:

- A. 6 lpm. C. 15 lpm.
- B. 10 lpm. D. 25 lpm.

_____ 7. What device on a bag-valve mask may prevent adequate ventilation?

- A. A nonjam valve
- B. A 15/22-mm respiratory filter
- C. A nonbreathing valve
- D. A pop-off valve

_____ 8. A potential complication of ventilating the patient with a bag-valve mask is:

- A. gastric distension.
- B. squeezing the bag completely.
- C. maintaining an open airway.

D. that the patient will wake up.

_____ **9.** Patient conditions that may require supplemental oxygen include:

A. shock. **C.** broken bones.

B. head injury. **D.** all of the above.

_____ **10.** A nasal cannula should be used to deliver oxygen to a patient who:

A. has a chronic lung disease.

B. is under one year of age.

C. will not tolerate a nonrebreather mask.

D. uses a cannula with a home oxygen system.

_____ **11.** Safety is of prime importance when working with oxygen; which of the following is therefore true?

A. A gasket is not required when connecting the valve to the tank.

B. It is best to open the valve just enough to allow the oxygen to flow.

C. Always store reserve oxygen tanks in a cool and ventilated place.

D. Grease and oil can be used on the valve when attaching it to the tank.

_____ **12.** Oxygen cylinder sizes vary, but all are considered “full” when pressure is equal to:

A. 1,000 psi. **C.** 2,000 psi.

B. 1,500 psi. **D.** 2,500 psi.

_____ **13.** An insufficiency in the supply of oxygen to the body’s tissues is called:

A. hypoxia. **C.** respiratory compromise.

B. hypoventilation. **D.** bronchoconstriction.

REINFORCEMENT

IN THE FIELD

Review the following real-life situation. Then answer the questions that follow.

A heavy rain is running off the ambulance windshield in rivulets as you pull up to a *difficulty breathing* call at a small, plain house on the east side of town. "Is that our patient?" Your partner squints through the downpour at a figure huddled on the cluttered front porch. Deep, rumbling thunder drowns your reply as you both make your way across the muddy yard to the front of the house, completing a scene size-up as you go.

"*Help . . .*," the man on the porch says in a barely audible hiss, punctuated by struggling respirations. In the glow of your flashlight you see that the man's lips are bluing, his face is pale, and his eyes show pure exhaustion. As you kneel to introduce yourself and reassure the patient that you are going to help him to breathe, your partner unzips the airway bag. The man looks slowly from you to your partner, slumps against the railing, and stops breathing.

1. After positioning the patient and ensuring a patent airway, what would your first priority be?
2. Would you say that this patient is in respiratory failure? Why or why not?
3. If your partner discovered that the bag-valve mask was missing from the supplies in the airway bag, what would you do?
4. What potential side effects of positive pressure ventilation should you be alert for when treating this patient?

CHAPTER 10 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. A person exhibiting signs of inadequate breathing is at risk of going into _____.
2. _____ is the reduction of breathing to the point where oxygen intake is not sufficient to support life; when breathing stops completely, the patient is in _____.
3. To determine the signs of adequate breathing, you should _____ for chest expansion, _____ for air, and _____ for air moving out of the nose and mouth.
4. A blue or gray color to the patient's skin or nail beds is called _____ and is a sign of breathing difficulty.
5. The most difficult part of delivering BVM artificial ventilations is obtaining an adequate _____.
6. _____ - _____ are found on older BVMs and may prevent adequate ventilations.
7. BVM systems with an _____ reservoir can deliver approximately _____ oxygen.
8. Venturi masks allow specific concentrations of oxygen by mixing oxygen with _____.
9. A peak flow rate of 100 percent oxygen at up to 40 liters per minute, and an audible alarm when the relief valve is activated are features of a(n) _____.

_____, _____ - _____
_____.

10. Partial rebreather masks allow the patient to rebreathe about one-third of his

_____.

11. The body of a patient with COPD may use low blood oxygen as the factor to stimulate her to breathe, a condition called _____.

12. A(n) _____ is the EMT's best way to deliver high concentrations of oxygen to a breathing patient because it can provide concentrations of oxygen ranging from _____ percent to _____ percent.

13. Duration of flow from an oxygen cylinder is calculated by subtracting the safe residual pressure (200 psi) from the _____ in psi, multiplying it times the constant (based on the size of the tank), then dividing by the _____.

VENTILATION TRUE OR FALSE

Indicate if the following statements are true or false by writing T or F in the space provided.

- _____ 1.If a patient's heart stops beating, breathing may continue for several minutes.
- _____ 2.When a patient's breathing stops completely, the patient is in respiratory failure.
- _____ 3. Typical skin coloration is one sign of adequate breathing.
- _____ 4. Cyanosis is the term used to describe a blue or gray skin color.
- _____ 5. A nonrebreather mask with high-concentration oxygen is the best treatment for a nonbreathing patient.
- _____ 6. Using a pocket face mask to ventilate a patient delivers a higher volume of oxygen than the bag-valve mask device with a reservoir.
- _____ 7. A "pop-off" valve is an undesirable feature of some older bag-valve mask devices.
- _____ 8. Most BVMs have a standard 15/22 mm connection to properly fit face masks and endotracheal tubes.
- _____ 9. When using a BVM device, a mask seal can more easily be maintained when ventilations are performed by two rescuers.
- _____ 10. Nonbreathing adult patients should be ventilated at a rate of 10 to 12 times per minute.
- _____ 11. Using a pocket face mask with supplemental oxygen will deliver nearly 100 percent oxygen concentration to your patient.
- _____ 12. A pediatric-size BVM mask can be used to establish a seal around a stoma.
- _____ 13. Flow-restricted, oxygen-powered ventilation devices may have an audible alarm when the relief valve is activated.

- _____ **14.** An automatic transport ventilator is used to supplement a patient's own weak respirations.
- _____ **15.** Blind Insertion Airway Devices are safer than other airways because there is no risk of the airway's becoming dislodged.
- _____ **16.** When ventilating the patient with a bag-valve mask attached to an endotracheal tube, the EMT must always be conscious to observe and report any changes in the resistance felt when ventilating the patient.
- _____ **17.** Supplemental oxygen is not generally considered a drug.

Chapter 10 Answer Key

HANDOUT 10-1: Chapter 10 Quiz

1. B
2. D
3. B
4. A
5. B
6. C
7. D
8. A
9. D
10. C
11. C
12. C
13. A

HANDOUT 10-2: In the Field

1. Your first priority would be to provide artificial ventilation.
2. No. The patient stopped breathing, which means that he is in respiratory *arrest*. Respiratory *failure* indicates that the patient is breathing, just not adequately.
3. It is critical that this patient receive artificial ventilation immediately; you should instruct your partner to retrieve a BVM from the ambulance while you begin providing ventilations with a face mask.

4. The three primary risks of positive pressure ventilations are hyperventilation, gastric distension, and hypotension caused by decreased cardiac output. All three can be avoided by ensuring proper ventilation rate and volume and head/airway positioning.

HANDOUT 10-3: Chapter 10 Review

1. respiratory failure
2. Respiratory failure; respiratory arrest
3. look; listen; feel
4. cyanosis
5. mask seal
6. Pop-off valves
7. oxygen; 100%
8. inhaled air
9. flow-restricted, oxygen-powered ventilation device
10. exhaled air
11. hypoxic drive
12. nonrebreather mask; 80; 100
13. gauge pressure; flow rate

HANDOUT 10-4: Ventilation Listing

1.
 - Chest movements are absent, minimal, or uneven.
 - Patient is using abdominal breathing.
 - No air can be felt or heard at the nose or mouth, or the amount of air exchanged is evaluated

to be below normal.

- Breath sounds are diminished or absent.
 - Noises such as wheezing, crowing, stridor, snoring, gurgling, or gasping are heard.
 - The rate of breathing is too rapid or slow.
 - Breathing is very shallow, very deep, or appears labored.
 - The patient's skin, lips, tongue, earlobes, or nail beds are blue or gray.
 - Inspirations are prolonged, or expirations are prolonged.
 - The patient is unable to speak, or the patient cannot speak full sentences.
 - In children, watch for retractions above the clavicles and between and below the ribs.
 - Look for nasal flaring, especially in infants and children.
2. • Open and maintain the airway.
- Provide artificial ventilation to the nonbreathing patient, or the patient with inadequate breathing.
 - Provide supplemental oxygen to the breathing patient.
 - Ensure a clear airway with frequent suctioning, as needed.

HANDOUT 10-5: Ventilation True or False

1. F
2. F
3. T
4. T
5. F
6. F

- 7. T
- 8. T
- 9. T
- 10. T
- 11. F
- 12. T
- 13. T
- 14. F
- 15. T
- 16. T
- 17. F