

Respiratory Emergencies

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Workbook Activities

The following activities have been designed to help you. Your instructor may require you to complete some or all of these activities as a regular part of your EMT-B training program. You are encouraged to complete any activity that your instructor does not assign as a way to enhance your learning in the classroom.

Chapter Review

The following exercises provide an opportunity to refresh your knowledge of this chapter.

Matching

Match each of the terms in the left column to the appropriate definition in the right column.

- | | |
|----------------------------|---|
| _____ 1. Asthma | A. irritation of the major lung passageways |
| _____ 2. Pulmonary edema | B. acute spasm of the bronchioles, associated with excessive mucus production and sometimes spasm of the bronchiolar muscles |
| _____ 3. Epiglottitis | C. accumulation of air in the pleural space |
| _____ 4. Emphysema | D. fluid build-up within the alveoli and lung tissue |
| _____ 5. Pleural effusion | E. an infectious disease of the lung that damages lung tissue |
| _____ 6. Pneumothorax | F. a substance that causes an allergic reaction |
| _____ 7. Dyspnea | G. difficulty breathing |
| _____ 8. Pneumonia | H. bacterial infection that can produce severe swelling |
| _____ 9. Hypoxia | I. a blood clot or other substance in the circulatory system that travels to a blood vessel where it causes blockage |
| _____ 10. Bronchitis | J. disease of the lungs in which the alveoli stretch, lose elasticity, and are destroyed |
| _____ 11. Hyperventilation | K. rapid or deep breathing that lowers blood carbon dioxide levels below normal |
| _____ 12. Allergen | L. fluid outside of the lung |
| _____ 13. Embolus | M. condition in which the body's cells and tissues do not have enough oxygen |

Multiple Choice

Read each item carefully, then select the best response.

- _____ 1. When treating a patient with dyspnea, you must be prepared to treat:
- A. the symptoms.
 - B. the underlying problem.
 - C. the patient's anxiety.
 - D. all of the above
- _____ 2. The oxygen-carbon dioxide exchange takes place in the:
- A. trachea.
 - B. bronchial tree.
 - C. alveoli.
 - D. blood.
- _____ 3. Oxygen-carbon dioxide exchange may be hampered if:
- A. the pleural space is filled with air or excess fluid.
 - B. the alveoli are damaged.
 - C. the air passages are obstructed.
 - D. all of the above
- _____ 4. If carbon dioxide levels drop too low, the person automatically breathes:
- A. normally.
 - B. rapidly and deeply.
 - C. slower, less deeply.
 - D. fast and shallow.
- _____ 5. If the level of carbon dioxide in the arterial blood rises above normal, the patient breathes:
- A. normally.
 - B. rapidly and deeply.
 - C. slower, less deeply.
 - D. fast and shallow.
- _____ 6. The level of carbon dioxide in the arterial blood can rise due to:
- A. emphysema.
 - B. chronic bronchitis.
 - C. cardiovascular disease.
 - D. all of the above
- _____ 7. The second stimulus that develops in patients with normally high levels of carbon dioxide responds to:
- A. increased oxygen levels.
 - B. decreased oxygen levels.
 - C. increased carbon dioxide levels.
 - D. decreased carbon dioxide levels.
- _____ 8. _____ is a sign of hypoxia to the brain.
- A. Altered mental status
 - B. Decreased heart rate
 - C. Decreased respiratory rate
 - D. Delayed capillary refill time
- _____ 9. An obstruction to the exchange of gases between the alveoli and the capillaries may result from:
- A. epiglottitis.
 - B. pneumonia.
 - C. colds.
 - D. all of the above

- _____ 10. Pulmonary edema can develop quickly after a major:
- A. heart attack.
 - B. episode of syncope.
 - C. brain injury.
 - D. all of the above
- _____ 11. In addition to a major heart attack, pulmonary edema may also be produced by:
- A. inhaling large amounts of smoke.
 - B. traumatic injuries to the chest.
 - C. inhaling toxic chemical fumes.
 - D. all of the above
- _____ 12. _____ is a loss of the elastic material around the air spaces as a result of chronic stretching of the alveoli when bronchitic airways obstruct easy expulsion of gases.
- A. Emphysema
 - B. Bronchitis
 - C. Pneumonia
 - D. Diphtheria
- _____ 13. Most patients with COPD will:
- A. chronically produce sputum.
 - B. have a chronic cough.
 - C. have difficulty expelling air from their lungs.
 - D. all of the above
- _____ 14. The patient with COPD usually presents with:
- A. an increased blood pressure.
 - B. a green or yellow productive cough.
 - C. a decreased heart rate.
 - D. all of the above
- _____ 15. A pneumothorax caused by a medical condition without any injury is known as:
- A. a tension pneumothorax.
 - B. a subcutaneous pneumothorax.
 - C. spontaneous.
 - D. none of the above
- _____ 16. Asthma produces a characteristic _____ as patients attempt to exhale through partially obstructed air passages.
- A. rhonchi
 - B. stridor
 - C. wheezing
 - D. rattle
- _____ 17. An allergic response to certain foods or some other allergen may produce an acute:
- A. bronchodilation.
 - B. asthma attack.
 - C. vasoconstriction.
 - D. insulin release.
- _____ 18. Treatment for anaphylaxis and acute asthma attacks include:
- A. epinephrine.
 - B. high-flow oxygen.
 - C. antihistamines.
 - D. all of the above

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- _____ 19. A collection of fluid outside the lungs on one or both sides of the chest is called a:
- A. spontaneous pneumothorax.
 - B. subcutaneous emphysema.
 - C. pleural effusion.
 - D. tension pneumothorax.
- _____ 20. Always consider _____ in patients who were eating just before becoming short of breath:
- A. upper airway obstruction
 - B. anaphylaxis
 - C. lower airway obstruction
 - D. bronchoconstriction
- _____ 21. _____ is defined as overbreathing to the point that the level of arterial carbon dioxide falls below normal.
- A. Reactive airway syndrome
 - B. Hyperventilation
 - C. Tachypnea
 - D. Pleural effusion
- _____ 22. Slowing of respirations after administration of oxygen to a COPD patient does not necessarily mean that the patient no longer needs the oxygen; he or she may need:
- A. insulin.
 - B. even more oxygen.
 - C. mouth-to-mouth resuscitation.
 - D. none of the above

Questions 23-27 are derived from the following scenario:

You respond to a home of a 78-year-old man having difficulty breathing. He is sitting at the kitchen table in a classic tripod position, wearing a nasal cannula. He is cyanotic, smoking, and has his shirt unbuttoned. His respirations are 30 breaths/min and shallow, his heart rate is 110 beats/min, and his blood pressure is 136/88 mm Hg.

- _____ 23. Your first thought as an EMT-B should be to:
- A. apply a nonrebreathing mask at 15L/min.
 - B. call for back-up.
 - C. consider BSI precautions.
 - D. put the cigarette out.
- _____ 24. His brain stem senses the level of _____ in the arterial blood, causing the rapid respirations.
- A. carbon dioxide
 - B. oxygen
 - C. insulin
 - D. none of the above
- _____ 25. Proper management of this patient should include:
- A. Oxygen via nonrebreathing mask at 15 L/min
 - B. Positive-pressure ventilations
 - C. Airway positioning
 - D. All the above
- _____ 26. Which of the following is NOT a sign or symptom of his inadequate breathing?
- A. His cyanosis
 - B. His shirt was unbuttoned
 - C. He was in a tri-pod position
 - D. His heart rate was over 100 beats/min (tachycardia)

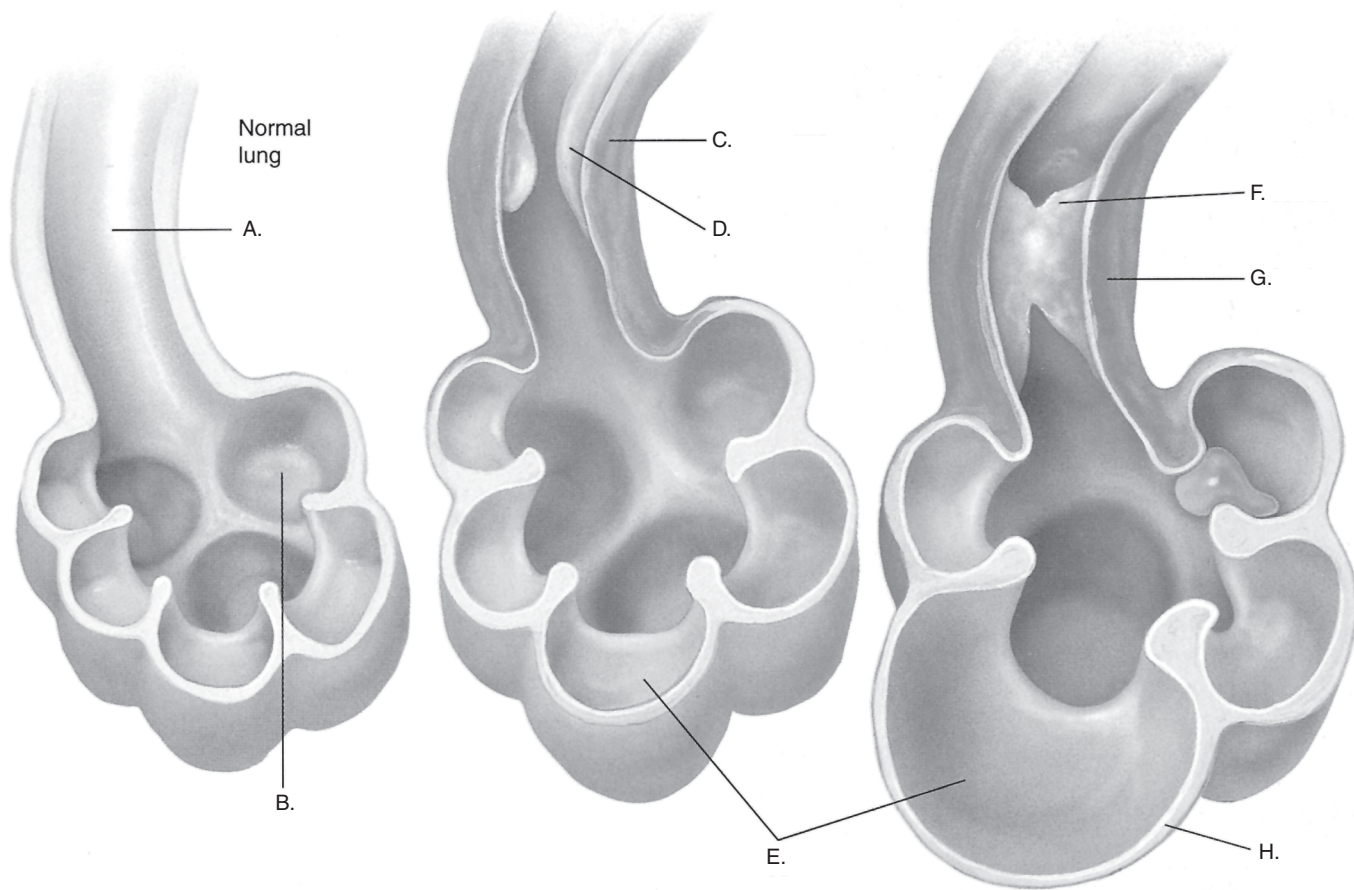
- _____ 27. What should you do during the ongoing assessment?
- A. Assess vital signs every 5 minutes
 - B. Repeat the initial and focused assessment
 - C. Reassess interventions performed
 - D. All the above
- _____ 28. Questions to ask during the focused history and physical examination include:
- A. What has the patient already done for the breathing problem?
 - B. Does the patient use a prescribed inhaler?
 - C. Does the patient have any allergies?
 - D. all of the above
- _____ 29. Generic names for popular inhaled medications include:
- A. ventolin.
 - B. metaprel.
 - C. terbutaline.
 - D. all of the above
- _____ 30. Contraindications to helping a patient self-administer any MDI medication include:
- A. not obtaining permission from medical control.
 - B. noticing that the inhaler is not prescribed for this patient.
 - C. noticing that the patient has already met the maximum prescribed dose.
 - D. all of the above
- _____ 31. Possible side effects of over-the-counter cold medications may include:
- A. agitation.
 - B. increased heart rate.
 - C. increased blood pressure.
 - D. all of the above
- _____ 32. A prolonged asthma attack that is unrelieved by epinephrine may progress into a condition known as:
- A. pleural effusion.
 - B. status epilepticus.
 - C. status asthmaticus.
 - D. reactive airway disease.

Labeling

Label the following diagrams with the correct terms.

Obstruction, scarring, and dilation of the alveolar sac

- A. _____ D. _____ G. _____
 B. _____ E. _____ H. _____
 C. _____ F. _____

**Fill-in**

Read each item carefully, then complete the statement by filling in the missing word(s).

1. The level of _____ bathing the brain stem stimulates respiration.
2. The level of _____ in the blood is a secondary stimulus for respiration.
3. _____ entering the alveoli passes into the capillaries, which carry _____ back to the heart.
4. Carbon dioxide and oxygen are exchanged in the _____.
5. Air enters the body through the _____.

6. Abnormal breathing is indicated by a rate slower than _____ breaths per minute or faster than _____ breaths per minute.
7. During respiration, oxygen is provided to the blood, and _____ is removed from it.
8. Evaluating the adequacy of the pulse can give you an indication of the patient's _____.
9. The last step in the initial assessment is to make a _____.
10. When asking questions about the present illness during the focused history and physical exam, use _____ and _____ to guide you in your questioning.

True/False

If you believe the statement to be more true than false, write the letter "T" in the space provided. If you believe the statement to be more false than true, write the letter "F."

- _____ 1. Chronic bronchitis is characterized by spasm and narrowing of the bronchioles due to exposure to allergens.
- _____ 2. With pneumothorax, the lung collapses because the negative vacuum pressure in the pleural space is lost.
- _____ 3. Anaphylactic reactions occur only in patients with a previous history of asthma or allergies.
- _____ 4. Decreased breath sounds in asthma occur because fluid in the pleural space has moved the lung away from the chest wall.
- _____ 5. Pulmonary emboli are difficult to diagnose.
- _____ 6. A patient with aspirin poisoning may hyperventilate in response to acidosis.
- _____ 7. The distinction between hyperventilation and hyperventilation syndrome is straightforward and should guide the EMT-B's treatment choices.
- _____ 8. COPD most often results from cigarette smoking.
- _____ 9. Asthma and COPD are characterized by long inspiratory times.
- _____ 10. SARS is a serious, potentially life-threatening viral infection that usually starts with flu-like symptoms and usually progresses to pneumonia and respiratory failure.
- _____ 11. When assessing a patient, the general impression will help you decide whether the patient's condition is stable or unstable.
- _____ 12. Skin color, capillary refill, level of consciousness, and pain measurement are key in evaluating the respiratory patient.

Short Answer

Complete this section with short written answers using the space provided.

1. List five characteristics of normal breathing.

2. List the five most common mechanisms occurring in lung disorders.

3. Under what conditions should you not assist a patient with a metered-dose inhaler?

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4. Describe chronic bronchitis.

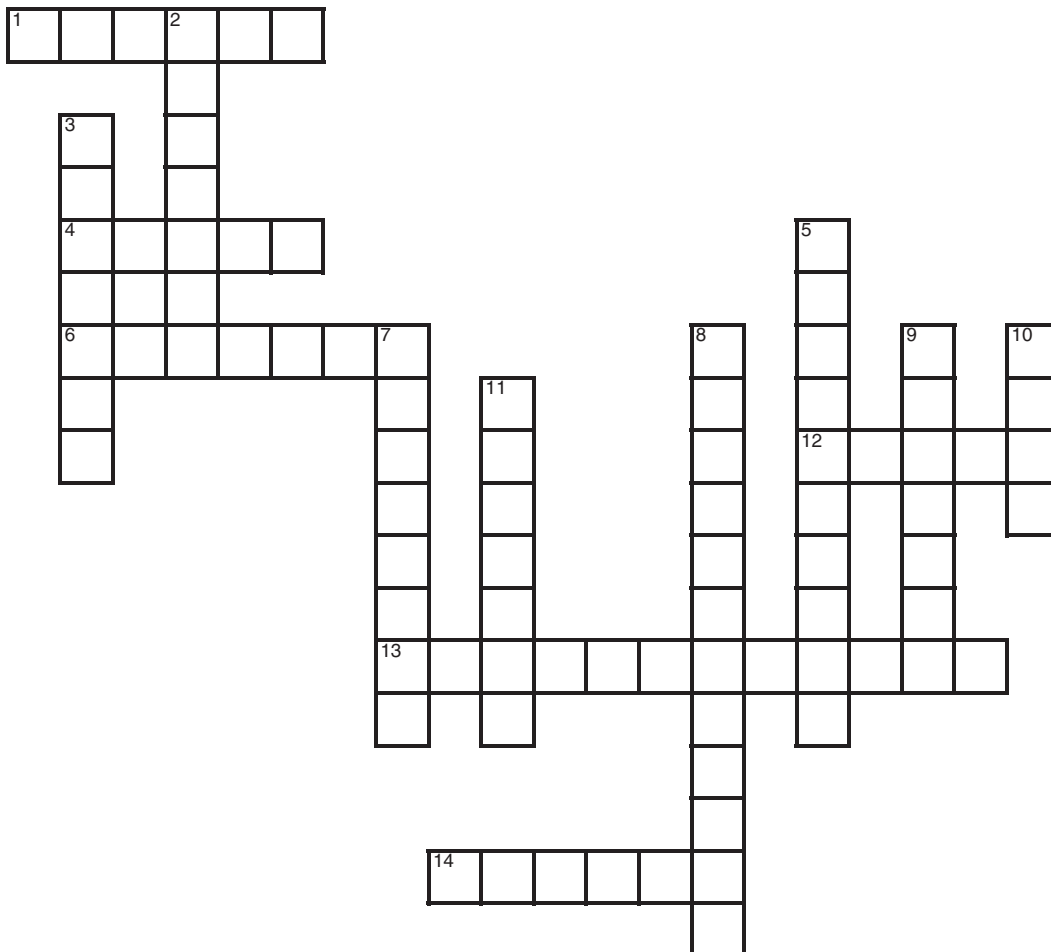
5. List five signs of inadequate breathing.

6. Explain carbon dioxide retention.

7. When ventilating a patient, how would you determine if your ventilations are adequate?

Word Fun 

The following crossword puzzle is an activity provided to reinforce correct spelling and understanding of medical terminology associated with emergency care and the EMT-B. Use the clues provided to complete the puzzle.

**Across**

1. High-pitched, whistling sound
4. Crackling, rattling sounds
6. Difficulty breathing
12. Barking cough
13. Inflammation of leaf-shaped airway cover
14. Muscle spasm in small airways

Down

2. Traveling clot
3. Harsh, high-pitched sound
5. Irritation of major airways
7. Substance causing a reaction
8. Air in pleural space
9. Coarse sounds from mucus in airways
10. Slow process of chronic disruption of airways
11. Low oxygen

Ambulance Calls

The following case scenarios will give you an opportunity to explore the concerns associated with patient management. Read each scenario, then answer each question in detail.

1. You are called to the home of a young boy who is reportedly experiencing difficulty swallowing. You arrive to find concerned parents who tell you that their son seems to 'be sick.' He can't swallow, has a high fever and refuses to lie down. As you enter the child's bedroom, you find him standing with arms outstretched onto the footboard of the bed, drooling and with a very frightened look on his face.

How do you manage this patient?

2. You are dispatched to a 36-year-old woman complaining of shortness of breath. You arrive to find a slightly overweight female patient who tells you she 'can't catch her breath.' She is a smoker whose only medication is birth control pills.

How would you best manage this patient?

3. You are called to the home of a 73-year-old man complaining of severe dyspnea. The patient has a history of COPD and is on home oxygen at 2 L/min via nasal cannula. His family tells you he has a long history of breathing problems and emphysema. He is cyanotic around his lips and his respirations are 36 breaths/min and shallow.

How would you best manage this patient?

Skill Drills**Skill Drill 11-1: Assisting a Patient With a Metered-Dose Inhaler**

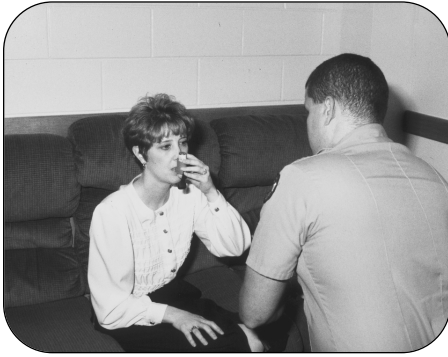
Test your knowledge of this skill drill by filling in the correct words in the photo captions.



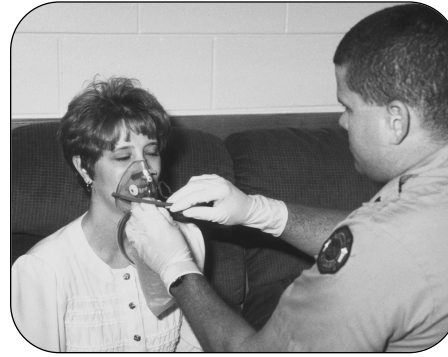
1. Ensure inhaler is at room temperature or _____.



2. Remove oxygen mask. Hand inhaler to patient. Instruct about breathing and _____.



3. Instruct patient to press inhaler and inhale. Instruct about _____.



3. Reapply _____. After a few _____, have patient repeat _____ if order/protocol allows.

Assessment Review

Answer the following questions pertaining to the assessment of the types of emergencies discussed in this chapter.

1. You have been assessing a 17-year-old female in respiratory distress, and you have just obtained her baseline vital signs. Your next step is to:
 - A. Make a transport decision
 - B. Consider a detailed physical examination
 - C. Contact medical control
 - D. Make interventions

2. You have determined that she is hyperventilating. Your emergency care would include:
 - A. Having her breath into a small paper sack.
 - B. Providing oxygen
 - C. Have her run in place until the hyperventilation subsides
 - D. None of the above
3. You have been called to a patient who resides in a long-term care facility and who is having difficulty breathing. After assessing and treating life threats to the patient's airway, breathing, and circulation, your next step is to:
 - A. Make a transport decision
 - B. Obtain a "SAMPLE" history
 - C. Obtain an "OPQRST" history
 - D. Obtain baseline vital signs
4. During the ongoing assessment, vital signs should be taken every _____ minutes for the unstable patient.
 - A. 3
 - B. 5
 - C. 10
 - D. 15
5. During the ongoing assessment, vital signs should be taken every _____ minutes for the stable patient.
 - A. 3
 - B. 5
 - C. 10
 - D. 15

Emergency Care Summary

Complete the statements pertaining to emergency care for the types of emergencies discussed in this chapter by filling in the missing word(s).

NOTE: While the steps below are widely accepted, be sure to consult and follow your local protocol.

Respiratory Distress	Asthma	Infection of Upper or Lower Airway
Administer oxygen by placing a _____ mask on the patient and supplying oxygen at a rate of _____ to _____ L/min. For any patient in respiratory distress, use positioning, airway adjuncts (_____ or _____ airway), or positive pressure ventilation as indicated.	Administer oxygen. Allow patient to sit in upright position. Suction large amounts of mucus. Help patient self-administer a _____ inhaler: <ol style="list-style-type: none"> 1. Obtain order from medical control. 2. Check _____ and whether patient has taken other doses. 3. Ensure inhaler is at room temperature or warmer. 4. Shake inhaler vigorously several times. 5. Remove oxygen mask. Instruct patient to _____ deeply. 6. Instruct patient to press inhaler and inhale. Instruct patient to hold breath as long as is comfortable. 7. Reapply oxygen. 	Administer _____ oxygen if available. Do not attempt to suction airway or place an oropharyngeal airway. Transport promptly with patient in position of comfort.

Acute Pulmonary Edema	Chronic Obstructive Pulmonary Disease	Spontaneous Pneumothorax	
<p>Administer 100% oxygen and suction any secretions from the airway as necessary.</p> <p>Place in position of comfort and provide _____ as needed.</p> <p>Transport promptly.</p>	<p>Provide _____ oxygen via nonrebreathing mask at _____ /min.</p> <p>If patient is prescribed an inhaler, administer it according to local protocol. Document time and effect on patient with each use.</p> <p>Place in the position of comfort and provide prompt transport.</p>	<p>Provide _____ oxygen and place in position of comfort.</p> <p>Transport promptly. Support airway, breathing, and circulation as necessary.</p>	
Pleural Effusions	Obstruction of the Upper Airway	Pulmonary Embolism	Hyperventilation
<p>Provide _____ oxygen at 15 L/min and place in position of comfort.</p> <p>Support airway, breathing, and circulation as necessary.</p> <p>Transport promptly.</p>	<p>For partial or complete foreign body airway obstructions, clear by following _____ guidelines, apply full-flow oxygen at 15 L/min as necessary, and transport promptly.</p>	<p>Clear airway and provide full-flow oxygen at 15 L/min.</p> <p>Place in position of comfort and provide prompt transport. Provide ventilatory support as necessary and be prepared for _____.</p>	<p>Provide full-flow oxygen at 15 L/min and coach _____ slower in a calm manner. Complete an initial assessment and focused history and physical exam.</p> <p>Transport promptly for evaluation.</p>