

**UNIT TERMINAL OBJECTIVE**

2-1 At the completion of this unit, the EMT-Intermediate student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.

**COGNITIVE OBJECTIVES**

At the completion of this unit, the EMT-Intermediate student will be able to:

- 2-1.1 Explain the primary objective of airway maintenance. (C-1)
- 2-1.2 Identify commonly neglected prehospital skills related to airway. (C-1)
- 2-1.3 Identify the anatomy and functions of the upper airway. (C-1)
- 2-1.4 Describe the anatomy and functions of the lower airway. (C-1)
- 2-1.5 Explain the differences between adult and pediatric airway anatomy. (C-1)
- 2-1.6 Define normal tidal volumes for the adult, child, and infant. (C-1)
- 2-1.7 Define atelectasis. (C-1)
- 2-1.8 Define FiO<sub>2</sub>. (C-1)
- 2-1.9 Explain the relationship between pulmonary circulation and respiration. (C-3)
- 2-1.10 List factors which cause decreased oxygen concentrations in the blood. (C-1)
- 2-1.11 List the factors which increase and decrease carbon dioxide production in the body. (C)
- 2-1.12 Describe the measurement of oxygen in the blood. (C-1)
- 2-1.13 Describe the measurement of carbon dioxide in the blood. (C-1)
- 2-1.14 List the concentration of gases which comprise atmospheric air. (C-1)
- 2-1.15 List the factors which affect respiratory rate and depth. (C-1)
- 2-1.16 Describe the voluntary and involuntary regulation of respiration. (C-1)
- 2-1.17 Describe causes of upper airway obstruction. (C-1)
- 2-1.18 Define normal respiratory rates for adult, child, and infant. (C-1)
- 2-1.19 Describe causes of respiratory distress. (C-1)
- 2-1.20 Define and differentiate between hypoxia and hypoxemia. (C-1)
- 2-1.21 Define pulsus paradoxus. (C-1)
- 2-1.22 Describe the modified forms of respiration. (C-1)
- 2-1.23 Define gag reflex. (C-1)
- 2-1.24 Explain safety considerations of oxygen storage and delivery. (C-1)
- 2-1.25 Identify types of oxygen cylinders and pressure regulators (including a high-pressure regulator and a therapy regulator). (C-1)
- 2-1.26 List the steps for delivering oxygen from a cylinder and regulator. (C-1)
- 2-1.27 Describe the indications, contraindications, advantages, disadvantages, complications, liter flow range, and concentration of delivered oxygen for supplemental oxygen delivery devices. (C-3)
- 2-1.28 Describe the use, advantages and disadvantages of an oxygen humidifier. (C-1)
- 2-1.29 Define, identify and describe a tracheostomy, stoma, and tracheostomy tube. (C-1)
- 2-1.30 Explain the risk of infection to EMS providers associated with ventilation. (C-3)

- 2-1.31 Describe the indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient by: (C-1)
- b. Mouth-to-mouth
  - c. Mouth-to-nose
  - d. Mouth-to-mask
  - e. One person bag-valve-mask
  - f. Two person bag-valve-mask
  - g. Three person bag-valve-mask
  - h. Flow-restricted, oxygen-powered ventilation device
- 2-1.32 Explain the advantage of the two person method when ventilating with the bag-valve-mask. (C-1)
- 2-1.33 Describe indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient with an automatic transport ventilator (ATV). (C-1)
- 2-1.34 Describe the Sellick (cricoid pressure) maneuver. (C-1)
- 2-1.35 Describe the use of cricoid pressure during intubation. (C-1)
- 2-1.36 Compare the ventilation techniques used for an adult patient to those used for pediatric patients. (C-3)
- 2-1.37 Define how to ventilate a patient with a stoma, including mouth-to-stoma and bag-valve-mask-to-stoma ventilation. (C-1)
- 2-1.38 Define complete airway obstruction. (C-1)
- 2-1.39 Define and explain the implications of partial airway obstruction with good and poor air exchange. (C-1)
- 2-1.40 Describe complete airway obstruction maneuvers. (C-1)
- 2-1.41 Describe laryngoscopy for the removal of a foreign body airway obstruction. (C-1)
- 2-1.42 Identify types of suction catheters, including hard or rigid catheters and soft catheters. (C-1)
- 2-1.43 Explain the purpose for suctioning the upper airway. (C-1)
- 2-1.44 Identify types of suction equipment. (C-1)
- 2-1.45 Describe the indications for suctioning the upper airway. (C-3)
- 2-1.46 Identify techniques of suctioning the upper airway. (C-1)
- 2-1.47 Identify special considerations of suctioning the upper airway. (C-1)
- 2-1.48 Describe the technique of tracheobronchial suctioning in the intubated patient. (C-3)
- 2-1.49 Define gastric distention. (C-1)
- 2-1.50 Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for inserting a nasogastric tube and orogastric tube. (C-1)
- 2-1.51 Describe manual airway maneuvers. (C-1)
- 2-1.52 Describe the use of an oral and nasal airway. (C-1)
- 2-1.53 Describe the indications, contraindications, advantages, disadvantages, complications, and technique for inserting an oropharyngeal and nasopharyngeal airway (C-1)
- 2-1.54 Differentiate endotracheal intubation from other methods of advanced airway management. (C-3)
- 2-1.55 Describe the indications, contraindications, advantages, disadvantages and complications of endotracheal intubation. (C-1)
- 2-1.56 Describe the visual landmarks for direct laryngoscopy. (C-1)

- 2-1.57 Describe the methods of assessment for confirming correct placement of an endotracheal tube. (C-1)
- 2-1.58 Describe methods for securing an endotracheal tube. (C-1)
- 2-1.59 Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for extubation. (C-1)
- 2-1.60 Describe methods of endotracheal intubation in the pediatric patient. (C-1)
- 2-1.61 Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for using a dual lumen airway. (C-3)
- 2-1.62 Define, identify, and describe a laryngectomy. (C-1)
- 2-1.63 Describe the special considerations in airway management and ventilation for patients with facial injuries. (C-1)
- 2-1.64 Describe the special considerations in airway management and ventilation for the pediatric patient. (C-1)

### **AFFECTIVE OBJECTIVES**

At the completion of this unit, the intermediate student will be able to:

- 2-1.65 Defend oxygenation and ventilation. (A-1)
- 2-1.66 Defend the necessity of establishing and/ or maintaining patency of a patient's airway. (A-1)
- 2-1.67 Comply with standard precautions to defend against infectious and communicable diseases. (A-1)

### **PSYCHOMOTOR OBJECTIVES**

At the completion of this unit, the EMT-Intermediate student will be able to:

- 2-1.68 Perform body substance isolation (BSI) procedures during basic airway management, advanced airway management, and ventilation. (P-2)
- 2-1.69 Perform pulse oximetry. (P-2)
- 2-1.70 Perform end-tidal CO<sub>2</sub> detection. (P-2)
- 2-1.71 Perform oxygen delivery from a cylinder and regulator with an oxygen delivery device. (P-2)
- 2-1.72 Deliver supplemental oxygen to a breathing patient using the following devices: nasal cannula, simple face mask, partial rebreather mask, non-rebreather mask, and venturi mask. (P-2)
- 2-1.73 Perform oxygen delivery with an oxygen humidifier. (P-2)
- 2-1.74 Perform medication administration with an in-line small-volume nebulizer. (P-2)
- 2-1.75 Demonstrate ventilating a patient by the following techniques: (P-2)
  - a. Mouth-to-mask ventilation
  - b. One person bag-valve-mask
  - c. Two person bag-valve-mask
  - d. Three person bag-valve-mask
  - e. Flow-restricted, oxygen-powered ventilation device
  - f. Automatic transport ventilator
  - g. Mouth-to-stoma

- h. Bag-valve-mask-to-stoma ventilation
- 2-1.76 Perform the Sellick maneuver (cricoid pressure). (P-2)
- 2-1.77 Ventilate a pediatric patient using the one and two person techniques. (P-2)
- 2-1.78 Perform complete airway obstruction maneuvers, including: (P-2)
  - a. Heimlich maneuver
  - b. Finger sweep
  - c. Chest thrusts
  - d. Removal with Magill forceps
- 2-1.79 Perform retrieval of foreign bodies from the upper airway. (P-2)
- 2-1.80 Demonstrate suctioning the upper airway by selecting a suction device, catheter and technique. (P-2)
- 2-1.81 Perform tracheobronchial suctioning in the intubated patient by selecting a suction device, catheter and technique. (P-2)
- 2-1.82 Demonstrate insertion of a nasogastric tube. (P-2)
- 2-1.83 Demonstrate insertion of an orogastric tube. (P-2)
- 2-1.84 Perform gastric decompression by selecting a suction device, catheter and technique. (P-2)
- 2-1.85 Perform manual airway maneuvers, including: (P-2)
  - a. Opening the mouth
  - b. Head-tilt/ chin-lift maneuver
  - c. Jaw-thrust without head-tilt maneuver
  - d. Modified jaw-thrust maneuver
- 2-1.86 Perform manual airway maneuvers for pediatric patients, including: (P-2)
  - a. Opening the mouth
  - b. Head-tilt/ chin-lift maneuver
  - c. Jaw-thrust without head-tilt maneuver
  - d. Modified jaw-thrust maneuver
- 2-1.87 Demonstrate insertion of an oropharyngeal airway. (P-2)
- 2-1.88 Demonstrate insertion of a nasopharyngeal airway. (P-2)
- 2-1.89 Intubate the trachea by direct orotracheal intubation. (P-2)
- 2-1.90 Perform assessment to confirm correct placement of the endotracheal tube. (P-2)
- 2-1.91 Adequately secure an endotracheal tube. (P-1)
- 2-1.92 Perform extubation. (P-2)
- 2-1.93 Perform endotracheal intubation in the pediatric patient. (P-2)
- 2-1.94 Insert a dual lumen airway. (P-2)
- 2-1.95 Perform stoma suctioning. (P-2)
- 2-1.96 Perform replacement of a tracheostomy tube through a stoma. (P-2)