

## INSTRUCTOR GUIDE

### COURSE: EMT-B AIRWAY DRILL

Session Reference: 1

Topic: Review of Airway Maintenance and Obstructed Airway Care

Level of Instruction: 3

Time Required: 3 hours

Materials: Chalkboard, CPR and Airway Manikins, Oropharyngeal and Nasopharyngeal Airways, Suctioning Unit and Catheters

Reference: Emergency Care, 7<sup>th</sup> Edition, Brady

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### PREPARATION:

Motivation:

Objective (SPO): 1-1

The student will demonstrate airway maintenance and obstructed airway maneuvers according to AHA standards.

Overview:

#### Review of Respiratory System and Its Function

- \* System Components and Importance of Proper Ventilation
- \* Opening and Maintaining Airways of Adults, Children, and Infants
- \* Suctioning
- \* Performing Artificial Ventilations

## **SESSION 1 Review Of Respiratory System and Its Function**

- SPO 1-1      The student will demonstrate airway maintenance and obstructed airway maneuvers according to AHA standards.
- 1-1            Name the major structures of the respiratory system.
- 1-2            Demonstrate the proper techniques to open the airway of an adult, child, and infant.
- 1-3            Describe the techniques of suctioning the airway.
- 1-4            Describe the steps to artificially ventilate a patient with a bag-valve mask for one and two rescuers.

The Airway Drill is designed for individuals who are currently first responders or EMT-B's. The drill should be mostly practical with only a short lecture on respiratory structure.

## I. Major Structures of The Respiratory System (1-1)

### A. Components of the System

1. Nose and mouth
2. Pharynx
  - i. Oropharynx
  - ii. Nasopharynx
3. Epiglottis
4. Trachea (windpipe)
5. Cricoid cartilage
6. Larynx (voice box)
7. Bronchi
  - i. bronchioles
  - ii. alveoli
8. Lungs
9. Diaphragm

Two major branches of trachea to lungs. Divides into smaller passages ending at alveoli.

Used with intercostal muscles in inhalation and exhalation.

### B. Importance of Proper Ventilation

1. Oxygen exchange through alveoli
2. Circulation of oxygen to cells
3. Oxygen/carbon dioxide exchange through capillaries
4. Respiratory Rates
  - i. Adult - 12 to 20/minute
  - ii. Child - 15 to 30/minute
  - iii. Infant - 25 to 50/minute

Brady p. 116 Fig. 7-1

## II. Opening and Maintaining the Airway (1-2)

### A. Adult

1. Head-tilt, chin lift (no spinal injury) Brady p. 119 Fig. 7-4
2. Jaw thrust (spinal injury suspected) Brady p. 119 Fig. 7-5
3. Measure and insert oropharyngeal or nasopharyngeal airway
  - i. Oropharyngeal measured from corner of mouth to tip of earlobe  
(Alternate measure from center of mouth to angle of Jaw) Brady p. 126 Fig. 7-15  
Brady p. 126 Fig. 7-15
  - ii. Insert oropharyngeal airway with tip toward roof of mouth and rotate after past uvula Note: It is also acceptable to insert without rotating as done in child patients, to avoid soft tissue damage
  - iii. Nasopharyngeal - use largest that will fit in nostril without force - usually can judge by size of patient's little finger Note: Nasal airways are usually long enough so measuring length is not necessary, but check to see that it is at least as long as the distance between the tip of the patient's nose and ear lobe.
  - iv. Insert nasopharyngeal by pushing tip of nose upward. Place in right nostril with bevel toward septum.

### B. Child

1. Head-tilt, chin lift - NEUTRAL ALIGNMENT
2. Jaw Thrust
3. Measure and insert an oropharyngeal airway.
  - i. Measure same as for adult.
  - ii. To insert, push down on tongue and pull up on jaw. Insert with tip pointing toward the tongue and throat.Child anatomy considerations:  
all structures generally smaller and more easily obstructed; tongues take up more space; trachea is softer and more flexible; depend more heavily on diaphragm for breathing. Support small child shoulders with hand or folded towel.

**C. Infant - NEUTRAL ALIGNMENT**

1. Head-tilt, chin-lift (no spinal injury)
2. Jaw Thrust (suspected spinal injury)
3. Measure and insert an oropharyngeal airway.
  - i. Measure same as for adult.
  - ii. To insert, push down on tongue and pull up on jaw. Insert with tip pointing toward the tongue and throat.

Infant anatomy considerations:  
all structures generally smaller and more easily obstructed; tongues take up more space; trachea is softer and more flexible; depend more heavily on diaphragm for breathing. Support infant shoulders with hand or folded towel.

**III. Suctioning (1-3)****A. Purpose**

1. Remove blood, liquids, and food particles.
2. Can be used to remove teeth and other foreign bodies.
3. When gurgling sound is heard.

**B. Types of Units**

1. Suction devices are mounted or portable - electrical and hand operated
2. Use hard/rigid or soft catheters.

**C. Proper Technique**

1. Hard catheters should only be inserted as far as you can see to suction mouth and oropharynx. Use rigid catheter for infant and children.
2. Soft catheters used for suctioning where a rigid catheter cannot be used - measure so that it is only inserted as far as base of tongue.
3. Suction for no more than 15 seconds at a time. Shorter time for infants and children - no more than a few seconds.
4. If thick secretions can not be suctioned, roll patient and clear oropharynx.

**IV. Ventilating with Bag Valve Mask (1-4)****A. One Person Bag Valve Mask**

1. Use correct size for patient - should be used with supplemental oxygen.
2. Kneel at patient's head.
3. Place top of mask over bridge of patient's nose then lower mask over mouth and upper chin.
4. Use ring and little fingers to maintain seal and head-tilt, chin-lift.
5. Squeeze the bag once every 5 seconds for an adult, once every 3 seconds for a child or infant.
6. Release pressure and let patient exhale passively.

**B. Two Person Bag Valve Mask**

1. Preferred method if have two rescuers.
2. First rescuer maintains seal using two hands.
3. Second rescuer squeezes the bag with two hands.
4. Allows better maintenance of seal and aids ventilations.

**REVIEW:**

Review of Respiratory System and Its Function

- \* System Components and Importance of Proper Ventilation
- \* Opening and Maintaining Airways of Adults, Children, and Infants
- \* Suctioning
- \* Performing Artificial Ventilations

**REMOTIVATION:**

**ASSIGNMENT:**

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**EVALUATION:**