



Loon Echo EMS Training and Consulting

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A-B-C's of Airway Management

This handout is for educational purposes only. EMS Services and EMS personnel should not change any protocol or procedure without authorization of the medical director for your service.

Airway management is one of the core skill competencies that must be maintained by pre-hospital care personnel. In this presentation we will discuss utilization of basic and advanced airway procedures including the oral/nasal airways, Combitube, King LT SD and Endotracheal intubation.

Objectives

1. Identify the importance of airway management in the critically ill or injured patient.
2. Discuss basic and advanced adjuncts and their appropriate utilization.
3. State methods to improve proficiency of personnel in airway management.

Training guides and skill sheets: Use available resources to develop guides and skill check off forms. The following are examples only and have been developed from:

- a. NREMT – www.nremt.org
- b. AHA – www.americanheart.org
- c. Textbooks:

Prehospital Emergency Care, 8/e, Joseph J. Mistovich / Keith J. Karren

PHTLS 7E, National Association of EMT's

A comprehensive Airway Management skills maintenance program will increase the comfort level of the EMS provider and ultimately improve performance and competency.



EMS Skills Maintenance Training Guide

Training Guide: Oral / Nasal Airway & Suctioning

Equipment: Adult resuscitation manikin, oral and nasal airways, bag valve mask, suction unit, suction catheters

Objectives:

- Demonstrate appropriate technique for measuring and inserting an oropharyngeal airway.
- Demonstrate appropriate technique for measuring and inserting a nasopharyngeal airway.

OROPHARYNGEAL AIRWAY

1. Measure airway from the corner of the mouth to the angle of the jaw.
2. Open the patient's mouth using the cross-finger method, placing your thumb on the patient's bottom teeth and your index finger on the upper teeth and then gently pushing them apart.
3. With the patient's mouth open as wide as possible; begin inserting the airway upside down, with the curvature toward the tongue to prevent pushing the tongue back into the pharynx.
4. When the airway reaches the back of the tongue, rotate the device 180 degrees. The tip should point down as it approaches the posterior wall of the pharynx, and the curvature should follow the contour of the roof of the mouth.
5. An alternative method is to insert the airway sideways until the airway reaches the back of the tongue, rotate the device into place.

NASOPHARYNGEAL AIRWAY

1. Measure the airway from the end of the nose to the earlobe.
2. Lubricate with water soluble lubricant.
3. Insert posteriorly, bevel should be toward base of the nare or toward the septum.
4. If the airway cannot be inserted into one nostril, try the other nostril.



EMS Skills Maintenance Training Guide

Suctioning Procedures (Basic)

1. Recognizes the need for clearing the airway.
2. Determine the best method and adjunct for clearing the airway
 - a. Manual
 - b. Soft catheter
 - c. Rigid catheter
 - d. Tubing
3. Soft catheters are measured from the corner of the mouth to the tip of the ear.
4. Hard or rigid (“tonsil sucker,” “tonsil tip”), are used to suction the mouth and oropharynx.
 - a. Should be inserted only as far as you can see.
 - b. Use rigid catheter for infants and children, but take caution not to touch the back of the airway.
5. Suctioning procedures:
 - a. Without suctioning, introduce the catheter to the appropriate length.
 - b. Once the tip is in place, apply suction, move tip and slowly withdraw the catheter.
 - c. Suction for no more Than 15 Seconds. (exceptions to amount of fluid)
 - d. Less in children and infants.
 - e. Reassess airway patency.



EMS Skills Maintenance Training Guide

Training Guide: Bag Valve Mask Utilization

Equipment: Adult resuscitation manikin, Adult BVM & mask

Objectives:

- Demonstrate appropriate technique for 1 and 2 rescuer BVM utilization including appropriate mask seal.
- Demonstrate proficiency of the rescuer in use of the BVM with mask.
- State the appropriate rate of ventilation for the non breathing adult patient.

Instructions: Have the student demonstrate one and two rescuer BVM techniques utilizing appropriate mask seal.

ONE RESCUER BVM

1. Recognizes the need for the BVM.
2. Dons disposable gloves.
3. Removes the BVM from packaging and attaches mask.
4. Opens the airway using head tilt/chin lift.
5. Place the mask over the nose and mouth.
6. Uses one hand to seal the mask to face of the patient. (Place the 3rd, 4th & 5th fingers along the bony portion of the mandible and the thumb and index fingers of the same hand on the mask)
7. Uses other hand to compress bag slowly and observe for chest rise to occur.
8. Ventilations should have an inspiration phase of 1.5 seconds.

TWO RESCUER BVM

1. Recognizes the need for the BVM.
2. Dons disposable gloves.
3. Removes the BVM from packaging and attaches mask.
4. Opens the airway using head tilt/chin lift.
5. One rescuer uses two hands to seal the mask to face of the patient. (Place the 3rd, 4th & 5th fingers along the bony portion of the mandible and the thumb and index fingers of the same hand on the mask)
6. 2nd rescuer uses two hands to slowly squeeze the BVM observing for chest rise. (Ventilations should be slow and full)
7. Ventilations should have an inspiration phase of 1.5 seconds.



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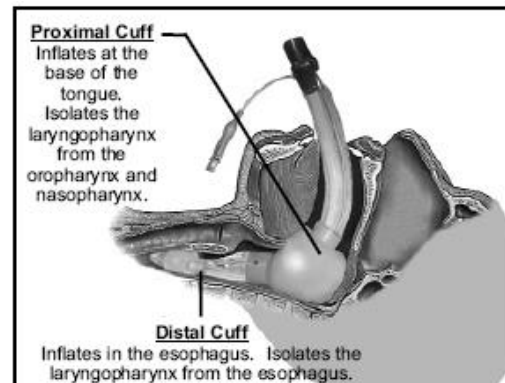
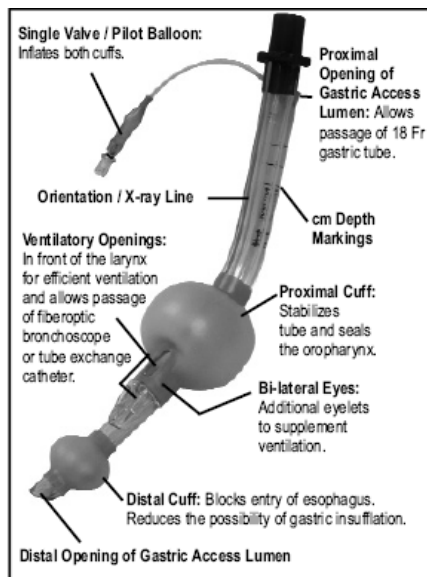
Training Guide: King LTS-D Airway

(For lab instruction, review the content of this JPR with personnel and complete the practical lab section)

The KING LTS-D is a sterile, single use device intended for airway management. It consists of a curved double-lumen tube with separate pathways for ventilation and access to the stomach. The ventilation lumen ends between the two inflatable cuffs with a variety of openings intended to align with the laryngeal inlet.

Attached to the proximal end of the ventilation lumen is a 15 mm connector for attachment to a standard breathing circuit or resuscitation bag. The gastric access lumen is a separate conduit that allows passage of up to an 18 Fr standard gastric tube from its external proximal opening to the distal tip of the KING LTS-D, which is intended to be positioned in the upper esophagus. This allows the gastric tube to be easily inserted into the stomach for removal of fluids. In the absence of a gastric tube, the gastric access lumen allows channeling of gases and fluids from the esophagus and stomach to a point outside the patient's mouth.

The KING LTS-D has two cuffs that are inflated with a single valve/pilot balloon. The distal cuff is designed to seal the esophagus, while the proximal cuff is intended to seal the oropharynx.



INDICATIONS FOR USE

The KING LTS-D is intended for airway management in patients over 4 ft in height (122 cm) for controlled or spontaneous ventilation. It is also indicated for difficult and emergent airway cases and is well suited for ambulatory and office-based anesthesia.



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CONTRAINDICATIONS

The following contraindications are applicable for routine use of the KING LTS-D:

- Responsive patients with an intact gag reflex.
- Patients with known esophageal disease.
- Patients who have ingested caustic substances.

WARNINGS/PRECAUTIONS

- The KING LTS-D does not protect the airway from the effects of regurgitation and aspiration.
- High airway pressures may divert gas either to the stomach or to the atmosphere.
- Intubation of the trachea cannot be ruled out as a potential complication of the insertion of the KING LTS-D.
- After placement, perform standard checks for breath sounds and utilize an appropriate carbon dioxide monitor as required by protocol.

Airway Sizes:

Size	Description	Connector Color	Gastric Tube Size	Inflation Volume
3	4-5 feet (122-155 cm) in height	Yellow	≤18 Fr	45-60 ml
4	5-6 feet (155-180 cm) in height	Red	≤18 Fr	60-80 ml
5	greater than 6 feet (180 cm) in height	Purple	≤18 Fr	70-90 ml

For size 3, 4, and 5 the OD is 18 mm and the ID of the Ventilation Lumen is equivalent to 10 mm.



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LAB SECTION (Equipment = King Airways with syringes, Intubation manikin, Suction, BVM)

1. Assure patient is over 4 feet tall. Select the Red tube for patients 5-6 foot tall and the Purple tube for patients over 6 feet in height.
2. Prepare airway, BVM, ETCO₂ and have suction ready.
 - a. Select appropriate size airway.
 - b. Lubricate only the posterior surface of the KING LTS-D to avoid blockage of the ventilation apertures or aspiration of the lubricant.
 - c. Have BVM ready with supplemental oxygen attached.
 - d. Monitor /defibrillator turned on and pulse oximetry and ETCO₂ ready to be utilized.
3. Apply chin lift and introduce the KING LTS-D into the corner of the mouth with the curve of the airway pointed toward the center of the patient's mouth.
4. Advance the tip under base of tongue, while rotating tube back to midline.
5. Without excessive force, advance tube until base of connector is aligned with teeth or gums.
6. Inflate cuffs **Size 3 = 50 ml** **Size 4 = 70ml** **Size 5 = 80ml**
7. Attach resuscitator bag (BVM). While gently bagging, slowly withdraw tube until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
8. Lubricate gastric tube (up to an 18French) prior to inserting into the KING LTS-D's gastric access lumen.
9. Ventilate patient every 6-8 seconds titrating to ETCO₂ of 35-45 mmhg with smooth wave form.



EMS Skills Maintenance Training Guide

Training Guide: Combitube

Indications:

1. Inability to ventilate the apneic patient
2. Patient that is unresponsive to any painful stimuli
3. Patient with no gag reflex or coughing

Contraindications:

1. Patients who are responsive
2. Patients who have a gag reflex or cough
3. Patient under the age of 16
4. Patients who have a known esophageal disease
5. Patients under 5 feet in height

Combitube Sizes: Select appropriate sized tube

1. 37 fr – 4' – 5'6" tall
2. 41 fr – 5' tall and above
3. Select proper size & lubricate
4. Grasp tongue and lower jaw, lift.
5. Insert airway device until teeth are between black rings on airway
6. Inflate blue tube with 100ml air
7. Inflate clear tube with 20 ml air
8. Attempt ventilation Blue, then clear tubes
9. Check patency

