Pre-Hospital Laryngeal Mask Airway Insertion

Program Overview

Program Title
“Pre-Hospital Laryngeal Mask Airway Insertion”

Student Eligibility
- Emergency Medical Technicians certified as Intermediates or Paramedics to perform endotracheal intubation in the Commonwealth of Massachusetts.

Course Format
- Although this material may be presented in a number of formats, a lecture / discussion model with practical scenario is given here. This program may be combined with other standing programs such as ACLS, PALS, or the Commonwealth’s ALS Interfacility Transfer Training Program.

Objectives
Upon completion of the training program, the provider will be able to:
- Discuss the Massachusetts Pre-Hospital Treatment Protocol concerning Laryngeal Mask Airway (LMA) tube insertion
- State the indications and contraindications of placing a LMA.
- Describe the procedure of placing a LMA.
- Demonstrate the placement of a LMA tube in an intubation manikin in a classroom setting.
- Successfully place the LMA device in a mannequin under the direct supervision of a licensed practitioner authorized to use the device.
- AND/OR Successfully place the LMA device in an operating room setting under the direct supervision of a qualified MD, CRNA or other licensed practitioner authorized to use the device.

Outline
- See the attached Program Outline

Teaching Methods
- Lecture / Discussion
- Video Tape Presentation
- Practical Skill Sessions / Stations
- Open Question and Answer Periods
- Clinical Application in a Mannequin (Required)
- Clinical Application in Operating Room (Optional)

Faculty
- Any Massachusetts provider currently authorized to perform the skill of Laryngeal Mask Airway insertion. This may include MD, PA, or RN. EMT-Paramedics or EMT-Intermediates who have previously completed this program are also eligible.
Pre-Hospital Laryngeal Mask Airway Insertion

References

Texts:


Journal Articles:


Video:

Pre-Hospital Laryngeal Mask Airway Insertion
Program Outline

1. Program Overview (5 to 15 minutes)
   1.1. Student Registration and Administrative Concerns
   1.2. Introduction of Faculty
   1.3. Program Objectives
   1.4. Program Outline
   1.5. Program Duration

2. Review of Massachusetts Protocol concerning Laryngeal Mask Airways (10 to 30 minutes)
   2.1. Statewide Treatment Protocols
   2.2. Indications
      2.2.1. Airway control in the absence of other effective methods.
   2.3. Contraindications
      2.3.1. The manufacturer of the LMA lists the following contraindications:
         2.3.1.1. The LMA does not protect the airway from the effects of regurgitation and aspiration.
         2.3.1.2. Patients who have not fasted or whose fasting cannot be confirmed.
         2.3.1.3. Patients with hiatal hernia unless effective measures have been taken to empty their stomach contents beforehand.
         2.3.1.4. Patients with fixed pulmonary compliance, such as patients with pulmonary fibrosis.
         2.3.1.5. Adult patients who are unable to understand instructions or cannot adequately answer questions regarding their medical history, since such patients may be contraindicated for LMA use.
         2.3.1.6. NOTE: When used in the profoundly unresponsive patient in need of resuscitation or in a difficult airway patient on an emergency pathway (i.e. “cannot intubate, cannot ventilate”), the risk of regurgitation and aspiration must be weighed against the potential benefit of establishing an airway. The LMA should not be used in the resuscitation or emergency situation in patients who are not profoundly unconscious and who may resist LMA insertion. In patients with severe oropharyngeal trauma, the risk of exacerbating the condition must be weighed against the potential benefit of establishing an airway.
      2.3.2. Warnings, Cautions, and Adverse Effects

3. Review of local policies, including documentation (5 to 15 minutes)
   3.1. Local Policies inserted here.
   3.2. Local documentation policies inserted here.
      3.2.1. Documentation may include:
         3.2.1.1. Time procedure was performed
         3.2.1.2. LMA type and size utilized
         3.2.1.3. Tube placement check, and by what manner
         3.2.1.4. Degree of difficulty encountered
         3.2.1.5. Complications encountered
         3.2.1.6. Name of provider performing procedure

4. Review of pertinent anatomy and physiology (15 minutes)
   4.1. Upper airway structures
   4.2. Upper gastrointestinal tract
   4.3. Airway grading

5. LMA manufacturer’s video instruction (15 to 45 minutes)
   5.1. Video(s) appropriate to the device(s) to be utilized.
6. Equipment introduction and Procedure demonstration (15 to 45 minutes)

6.1. Equipment
   6.1.1. Personal protective equipment
   6.1.2. Laryngeal Mask Airways of appropriate sizes
   6.1.3. Syringe of appropriate volume for selected device
   6.1.4. 10 or 12 Fr suction catheter
   6.1.5. Water-soluble lubricant
   6.1.6. Adhesive tape
   6.1.7. Bag Valve Mask resuscitator
   6.1.8. Oxygen source
   6.1.9. Suction device

6.2. Standard Procedure (sharply abbreviated here – see manufacturer’s directions for use.)
   6.2.1. Ventilate the patient
   6.2.2. Select the correct size tube
   6.2.3. Prepare the LMA for use
      6.2.3.1. Perform LMA performance tests as specified by manufacturer
      6.2.3.2. Tight deflation of the LMA cuff without distal wrinkles
      6.2.3.3. Spare LMA prepared and ready for use
   6.2.4. Lubricate tube with water soluble lubricant
   6.2.5. Position the patient’s head
   6.2.6. Properly orient and grasp the tube
   6.2.7. Insert LMA upward against the hard palate, and push the device inwards and backward with the index finger. Do not use force.
   6.2.8. Use the other hand to press down on the LMA tube before removing index finger.
   6.2.9. Ensure that the black line on the airway tube is oriented anteriorly toward the upper lip.
   6.2.10. Inflate the cuff with just enough air to obtain a seal. Varies with cuff size and patient anatomy. Do not hold the tube during cuff inflation.
   6.2.11. Ventilate the patient
   6.2.12. Auscultate breath sounds and confirm placement
   6.2.13. Insert a bite block and secure the tube.
   6.2.15. Document the procedure.

6.3. Thumb Insertion Procedure.
6.4. Review of potential problems with LMA insertion.
6.5. Review of manufacturer’s cautions and warnings.
6.6. Special patient populations
   6.6.1. Pediatric patients
   6.6.2. Difficult airway
   6.6.3. LMA and failed intubation
   6.6.4. LMA use and gastric drainage

6.7. LMA Flexible
6.8. LMA Fast-Trach

7. Student practical skill sessions/stations (20 to 60 minutes)
   7.1. Recommended one instructor per six to eight students and one training manikin capable of accepting a LMA.
   7.2. Skill sessions should be scenario-based (see attached sample cases.)
   7.3. Larger groups may benefit from station rotation in timed intervals.

8. Written and/or Practical Examination (30 minutes)
9. Review, Questions and Answers (15 minutes)
10. Optional Clinical Experience (8 hours)

10.1. The participant will complete eight hours of clinical observation time in an operating room setting approved by the Ambulance Service Medical Director.

10.2. The participant will successfully place the LMA device in three patients in an operating room setting under the direct supervision of a qualified MD, CRNA or other licensed practitioner authorized to use the device.

10.3. The participant will document this clinical experience.

Total Program Time

Lecture / Didactic: 130 to 270 minutes
Optional: Clinical: 8 hours
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Sample Cases

Case One
A 37-year-old female patient collapsed in her living room. She is in cardiac arrest and routine ACLS care is in progress. You have been unable to intubate the patient’s tracheal after multiple attempts, and your attempts at bag-valve-mask ventilation are inadequate. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Two
A 15-year-old female pedestrian was struck by a motor vehicle at a moderate speed. She unconscious to deep painful stimuli and is suffering from severe facial trauma. Your efforts at maintaining the patient’s airway with BLS techniques and generous suctioning are inadequate. The patient is approximately 5 feet tall. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Three
You are called to the local recreational center where the lifeguards have removed a ten-year-old male patient from the pool. You find him deeply unconscious, without a gag reflex. His respirations number 4 per minutes and he has a blood pressure of 150/100 mmHg. He has been c-spine immobilized prior to your arrival. The patient is over four feet tall. As you prepare to intubate the patient, you find your laryngoscope is not operational. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Four
You have been unable to intubate a 55 year-old male patient unconscious after receiving a gunshot wound to the thorax. You are having difficulty maintaining the patient’s airway using BLS methods. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Five
A 31-year-old male patient was involved in a motorcycle accident. He does not respond verbally, is bleeding from facial injuries, and is combative while lying supine on the roadside. His vital signs are BP 88/P, P134, and R44. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.
Pre-Hospital Laryngeal Mask Airway Insertion Performance Checklist

Provider’s Name________________________________________ Date______________________
Mass. EMT Number #__________________ Level (circle)   EMT       EMT-I        EMT-P
Service ___________________________________________________________________

When demonstrating the insertion of a Laryngeal Mask Airway the provider should:
- Verbalizes the indications for the Airway
- Verbalizes the contraindications for the Airway
- Proper use of PPE
- Assembles all necessary equipment
- Selects appropriate LMA size
- Ventilates patient prior to insertion
- Properly prepares LMA for use, including proper cuff deflation
- Lubricates tube on posterior surface only
- Opens and clears airway and positions head properly
- Inserts device properly into oropharynx and advances correctly
- Inflates cuff / pilot balloon to achieve proper seal
- Ventilates effectively and auscultates breath sounds
- Verbalizes appropriate breath sounds for correct placement
- Properly utilizes bite block device
- Properly secures device in place
- Utilizes end-tidal carbon dioxide detection device
- Verbalizes proper suctioning method

Final Performance

PASS    FAIL

Comments
_________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Instructor / Examiner Print Name______________________________    Credentials
Instructor / Examiner Signature_______________________________   Date

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