# Laryngeal Mask Airway (LMA) Removal in PACU

## Site Applicability

SPH and MSJ PACU

## Practice Level

Specialized: Critical Care RN's

## Requirements

Unconscious patients may be managed in PACU with an LMA in situ until the patient is able to maintain and protect their own airway. The RN may remove the LMA when patient meets the criteria below and provided there is an anesthesiologist readily available to re-intubate the patient in an emergency situation.

## Need to Know

The laryngeal mask airway is an advanced airway alternative to endotracheal intubation and provides comparable ventilation. It is considered a supraglottic device. The airway is designed to conform to the contours of the hypopharynx with its lumen facing the laryngeal opening to ventilate and oxygenate patients for short or intermediate periods during elective anesthesia or emergency airway management. Attached to the mask is an inflation line with a pilot balloon and valve for mask inflation and deflation. When inflated, the device can maintain a seal with airway pressures up to 30 cm $H_2O$ and can be used with spontaneous or controlled ventilation.

An LMA is not recommended in patients that have not fasted prior to surgery, are obese, are pregnant, have distorted anatomy such as laryngeal trauma or epiglottis, have known delayed gastric emptying or are undergoing laparoscopic surgery.

Removal of the LMA is performed following the return of protective reflexes. Suction equipment should be readily accessible during removal and equipment for rapid sequence intubation should be available within the unit. Watch for signs of swallowing, the interval between the start of swallowing and the ability to open the mouth to command will vary. The LMA can be removed with an inflated or partially inflated cuff, this helps capture the secretions and pull them forward with removal. If the cuff is deflated prior to return of effective swallowing and cough reflexes, secretions in the upper pharynx may enter the larynx, provoking coughing and/or laryngeal spasm. The LMA can be removed at any point during the respiratory cycle; removal on expiration decreases the chance of secretions entering the trachea.

## Equipment and Supplies

1. Functional suction equipment with yankauer
2. Functional oxygen available with face mask and/or nasal prongs
3. Oropharyngeal and/or nasal pharyngeal airways (multiple sizes)
4. 10 mL or 35 mL luer lock syringe
5. Ambu bag (bag-valve-mask) resuscitator connected to oxygen and ready to use
6. Emergency intubation supplies available in unit
7. Personal protective equipment, goggle, facemask, gloves, gown (as appropriate)
8. SAV-A-DAY cardboard tray

## Procedure

### Steps

| Steps | Rationale |
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| 1. Leave patient relatively undisturbed until autonomic reflexes are restored. The inflated cuff protects the larynx from oral secretions and suctioning is not likely to be required. | Suctioning and physical stimulation may provoke laryngeal spasm if anesthesia is light. |
| 2. Assess patient's readiness for LMA removal:<br>• Spontaneous respirations with a rate greater than 8 / min<br>• Oxygen saturation greater than 92% with or without supplemental $O_2$<br>• Return of autonomic reflexes, i.e. gag, cough, swallow<br>• Able to open mouth to command | Removal of an airway prematurely may result in the patient being unable to support and protect their own airway which could lead to obstruction and/or aspiration. |
| 3. When patient meets criteria outlined above, don personal protective equipment (i.e. gloves), loosen and remove any tape or ties holding the LMA in place. If present, leave the bite block in place until after the LMA is removed. | When a bite block is used leaving it in place until after LMA removal may avoid the incidence of negative pressure pulmonary edema associated with biting down on the tube. |
| 4. Explain procedure to the patient and instruct patient to open his/her mouth. | An inflated cuff can help remove more oral secretions than a deflated cuff. |

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| a. Remove the LMA in one fluid motion. Do not deflate the cuff unless instructed by anesthesia.<br>b. If requested by anesthesia, using a 10 mL or 35 mL luer lock syringe remove the air from the cuff and simultaneously remove the LMA. A size 4 LMA has a maximum volume of 30 mL of air; size 5 LMA – 40 mL. | Do not deflate the cuff until the patient meets LMA removal criteria. If the cuff is deflated before the return of effective cough and swallowing reflexes, secretions in the upper pharynx may enter the larynx provoking coughing or laryngeal spasm. |
| 5. Remove bite block if present. | |
| 6. Verify airway patency and respiratory depth. | |
| 7. Assist patient to clear his/her airway. Suction oropharynx using a yankauer. | |
| 8. Along the tube of the LMA it will either indicate *single patient use* or *steam autoclave only*. All single patient use LMA's can be disposed of in the garbage. The remainder can be sent to the Medical Device Reprocessing Department (MDRD). | The LMA's that indicate *steam autoclave only* are reusable. |
| 9. Document on the PACU patient record the time the airway is removed and by whom. | |
| 10. Continue to monitor and observe the patient for airway patency, ability to clear secretions and maintain ventilation and oxygenation. | |

### Documentation

Document assessments, interventions and outcomes in PowerChart, or for Downtime Procedures on:

**SPH:** Form No. PA015: PACU Patient Record

**MSJ:** Form No. GF5032M: PACU Patient Record

## Related Documents

1. B-00-13-10018 - Care of the Post Anesthetic Patient in Phase I
2. B-00-12-10106 - Extubation/Removal of Endotracheal Tube of Non-Ventilated Patient in PACU

## References


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3 Finley, L., Owen, D., Klaver, Y., Mitzner, A., & Thompson, J. (2010). Airway Management in the Post Anesthetic Care Unit. Alberta Health Services: Calgary.

4 Jigajinni, S., & Sultan, P. (2010). Intermittent positive pressure ventilation: endotracheal tube vs laryngeal mask airway? *British Journal of Hospital Medicine 71*(5) pp. 297.

5 Nunez, J., Hughes, J., Wareham, K., & Asai, T. (1998). Timing of removal of the laryngeal mask airway. *Anaesthesia 53*, 126-130.

6 Teleflex Medical. (2015). Instructions for Use LMA: ProSeal. Author: Ireland.


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