

	<p>Policies and Procedures</p> <p>Title: LARYNGEAL TUBE – INSERTION, CARE OF AND REMOVAL - ADULT</p> <p>RN Specialty Practice: RN Clinical Protocol: Health Condition in an Emergency: Laryngeal Tube Insertion and Removal in Adults</p> <p>I.D. Number: 1193</p>
<p>Authorization: [X] Former SktnHR Nursing Practice Committee</p>	<p>Source: Nursing Date Effective: June 2018 Scope: Former SktnHR Rural Acute Care</p>

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DEFINITIONS

Supraglottic airways (SGAs): this is a term that encompasses many different advanced airway devices that sit immediately outside of the larynx. Some examples of SGAs are the laryngeal mask airway (LMA), the i-gel, the combitube and the laryngeal tube.

Note: *This policy and procedure only addresses the insertion, care of and removal of the laryngeal tube and does not encompass any other SGA.*

Laryngeal Tube: is a blindly inserted supraglottic airway device used for emergency airway management. The laryngeal tube can be used either as a first choice for an airway device or as a back-up airway device to unsuccessful endotracheal intubation. The laryngeal tube is currently available in two models: The LT-D (laryngeal tube disposable) and the LTS-D (laryngeal tube suction disposable). The LTS-D consists of a double lumen curved tube: it has ventilation outlets located between the two inflatable cuffs (the first lumen) and a gastric access lumen. The LT-D differs by having no gastric access lumen. Both cuffs are inflated using a single valve/pilot balloon. The distal cuff is designed to seal the esophagus, while the proximal cuff is intended to seal the oropharynx. Laryngeal tubes are commonly known by these brand names: King Airways (Ambu® King LTS-D™ Disposable Laryngeal Tube) and VBM Medizintechnik.

Most Responsible Health Practitioner (MRHP): means the Health Practitioner who has the responsibility and accountability for the specific treatment/procedure(s) provided and prescribed to a patient and who is authorized by the former SktnHR to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

ROLES

Registered Nurses (RNs) - RNs identified by their manager in targeted practice settings will be certified in this RN Specialty Practice: RN Clinical Protocol: Health Condition in an Emergency: Laryngeal Tube Insertion and Removal.

Graduate Nurses (GNs) – GNs identified by their manager in targeted practice settings will be certified in this RN Specialty Practice but may only perform this procedure under the direct supervision of a certified RN.

Licensed Practical Nurses (LPNs) and Graduate Licensed Practical Nurses (GLPNs) – may be assigned to ventilate a patient through a laryngeal tube under the direct supervision of an RN, RN(NP), physician or paramedic.

1. PURPOSE

1.1. To ensure safe and high quality practice of laryngeal tube insertion, care of and removal.

2. POLICY

2.1. RNs certified in this RNSP will have successfully completed the following learning modules/activities prior to providing care:

2.1.1. For initial certification, nurses must:

2.1.1.1. Have current BLS certification.

2.1.1.2. Complete the Emergency Airway Management learning package and provide evidence of completion to a Clinical Nurse Educator (CNE).

2.1.1.3. Complete the Laryngeal Tube – Insertion, Care of and Removal in Adults Learning Package and provide evidence of completion to a CNE.

2.1.1.4. After a simulated demonstration, be able to return-demonstrate laryngeal tube insertion, maintenance and removal skills as outlined on the skills checklist in a targeted clinical or simulated setting with a CNE.

2.1.2. For maintenance of certification, nurses must:

2.1.2.1. Maintain current BLS certification.

2.1.2.2. Review this policy and procedure and be able to demonstrate skills either in a targeted clinical or simulated setting to a CNE annually.

2.2. Personal Protective Equipment (PPE) will be worn. Complete a Point of Care Risk Assessment (POCRA) to determine PPE appropriate to the procedure being performed. Refer to Infection Prevention and Control Policy and Procedures: [Point of Care Risk Assessment \(POCRA\) #20-25](#); [Masks, Eye Protection and Face Shields #20-40](#); [Personal Protective Equipment \(PPE\) - Donning and Doffing #20-150](#).

2.3. A laryngeal tube may be inserted in patients experiencing respiratory arrest when ventilating with an MVD, mask (per Nursing Policy & Procedure [P&P] [Ventilation Assistance – Manual Ventilation Assistance – Manual Ventilation Device #1027](#)), and airway adjunct (NPA per Nursing P&P [Airway- Nasopharyngeal: Insertion Of: Maintenance, Suction, Removal #1064](#) or OPA per Nursing P&P [Airway-Oropharyngeal - Insertion Maintenance Suction Removal #1159](#)) is insufficient (i.e. poor mask seal, difficulty ventilating, gastric distention).

2.3.1. The certified nurse may insert a laryngeal tube in adult patients who are:

- apneic
- and unresponsive
- and without an intact gag reflex.

2.3.2. The certified nurse may insert a laryngeal tube when:

- awaiting an MRHP's presence or
- in the absence of an MRHP or
- when endotracheal intubation attempts by an MRHP or other provider have been unsuccessful or
- when it has been chosen as a primary airway device and is ordered to be inserted by an MRHP.

2.3.3. Contraindications to insertion include patients who:

- are responsive
- have an intact gag reflex
- have ingested caustic substances
- have esophageal trauma or disease (i.e. varices)
- have a suspected or known foreign body airway obstruction
- have a tracheostomy or stoma
- have conditions that compromise the glottic opening (i.e. epiglottitis, suspected or known upper airway burns, anaphylaxis)

2.4. Removal of the laryngeal tube will be at the discretion of the MRHP. The laryngeal tube may be removed by a certified RN if the patient is fully alert and fighting against the device upon direction of the MRHP, or in the absence of an MRHP, the RN may remove the tube.

2.5. All patients with a laryngeal tube will be cared for in targeted areas/areas with cardiac and end tidal CO₂ (ETCO₂) monitoring and will receive continuous nursing care by appropriate personnel (those able to care for someone with an advanced airway in place).

2.6. An MRHP, when present, may order medication(s) as necessary (e.g. sedation and analgesia for ongoing patient care).

2.7. The laryngeal tube can remain in situ for up to 8 hours.

3. PROCEDURE

3.1. Assess the patient ensuring that the patient meets the indication criteria for laryngeal tube insertion and does not have any contraindications for the procedure (see 2.3).

3.2. Preparation prior to insertion

3.2.1. Supplies:

- Laryngeal tube of appropriate size for patient (see Appendix A)
- Syringe large enough to inflate cuffs
- PPE
- Sterile water soluble lubricant (i.e. Muko)
- O₂ setup with flow regulator and oxygen tubing
- Tube confirmation device to measure ETCO₂, whichever is available: continuous waveform capnography or a colourimetric exhaled CO₂ device (i.e. Easy Cap II)
- MVD and mask of appropriate size for patient

- Stethoscope
- Suction (wall or portable)
- 2 types of suction catheters and tubing – Yankuer suction and sterile, flexible suction catheter
- Approved manufactured airway securement device (i.e. Thomas Tube Holder)
- Gastric tube and insertion supplies (refer to Nursing P&P [Nasogastric/Orogastric Tube: Insertion, Care of, and Removal – Adult #1040](#))
- Additional equipment, to have available as needed, includes a laryngoscope or a tongue depressor

3.2.2. Perform hand hygiene and don PPE.

3.2.3. Ensure the laryngeal tube is in proper working order by:

- Inspecting all the components for visible damage.
- Examining the interior of the tube to ensure that it is free from blockage or loose particles.
- Inflating both cuffs by injecting the maximum recommended volume of air into each and checking for leaks; then fully deflating the cuffs.

Note: *If there are any problems noted, discard and select another laryngeal tube.*

3.2.4. Apply a water-based lubricant (i.e. Muko) to the bevel distal tip and posterior aspect of the tube. Take care to avoid the introduction of lubricant in or near the ventilatory openings on the tube.

3.2.5. Pre-oxygenate the patient.

3.2.6. Position the patient's head. The ideal head position for insertion of a laryngeal tube is the "sniffing position". However, if spinal immobilization is indicated the laryngeal tube can be inserted with the head in a neutral position.

3.3. Insertion

3.3.1. Hold the laryngeal tube at the connector with your dominant hand. With your non-dominant hand, hold the mouth open and lift the chin anteriorly. Use the jaw-thrust maneuver for patients with suspected cervical spine injury while maintaining cervical spine protection (this will require an assistant).

3.3.2. With the laryngeal tube rotated laterally so that the blue orientation line is touching the corner of the mouth, introduce the tip into the mouth and advance it along a medial plane (i.e. centrally), behind the base of the tongue.

3.3.3. Rotate the tube back to the midline (so that the blue orientation line faces the chin) as the tip reaches the posterior wall of the pharynx.

3.3.4. Without using force, advance the laryngeal tube until the upper teeth or gum aligns with the black depth-marker line that indicates the deepest placement.

3.3.5. Continue to hold the laryngeal tube in place while attaching a tube confirmation device (waveform capnography, exhaled CO₂ detector) to the airway then attach the MVD.

3.3.6. Hold the tube gently but securely while inflating the cuffs of the laryngeal tube, starting with the recommended minimal amount of air for the tube size; do this by attaching a syringe to the single valve/pilot balloon and allow the tube to rise during inflation (this may or may not

occur). The single valve/pilot balloon inflates both cuffs. If the volume of air that has been inserted is not enough to achieve a good ventilatory seal, inflate the cuffs with more air, a little bit at a time, until a good seal can be achieved or the maximum recommended amount of air has been instilled (maximum cuff pressure should be less than 60 cm H₂O so if not able to measure, then using this 'just seal' technique is preferred).

3.3.7. Gently ventilate the patient to assess ease of ventilation. If resistance to ventilation is felt, slowly and carefully withdraw the airway, in small increments, until ventilation is easy and free flowing.

Note: *Withdrawal of the tube with the cuffs inflated results in retraction of tissue away from laryngeal inlet and encourages patency of airway if the issue was that the tube placement was too deep. If the tube length is not long enough for the patient (that despite it being fully inserted it was still too shallow), consideration needs to be given to inserting the next largest size tube).*

3.3.8. Confirm proper placement of the laryngeal tube:

3.3.8.1. Assess for gurgling over the epigastrium (none should be heard), equal chest rise and fall, and bilateral breath sounds.

3.3.8.2. Assess ETCO₂ for confirmation according to manufacturer's directions.

Note: *If the criteria for confirmation of placement are not met (the tube is believed not to be inserted properly or a different size would be a better fit for the patient) then the RN must remove the laryngeal tube, provide ventilations with an MVD and mask, and prepare the patient for insertion with a new tube.*

3.3.9. Note the depth of insertion at the level of the upper teeth or gums using the reference marks provided on the end of the laryngeal tube.

3.3.10. Secure the laryngeal tube by using an approved manufactured airway securement device (i.e. Thomas Tube Holder). Do not let go of the laryngeal tube until it is secured. Ensure the gastric lumen is not occluded.

Note: *if an approved manufactured airway securement device is not available, tape may be used. A bite block may also be used (the manufactured airway device may have one already built-in).*

3.3.11. If the laryngeal tube inserted is of the LTS-D model, then insert a lubricated gastric tube to decompress the stomach and provide suctioning through the gastric access lumen. Measure, mark and document the depth for insertion of the gastric tube and confirm placement as per Nursing P&P [Nasogastric/Orogastric Tube: Insertion, Care of, and Removal – Adult #1040](#). This gastric tube can be secured to the laryngeal tube with tape just below the connector in addition to the requirements in the aforementioned P&Ps.

3.3.12. Discard supplies, remove PPE, and perform hand hygiene.

3.4. Care of

3.4.1. Continued care of the patient with a laryngeal tube requires continuous nursing care with continuous assessment of the patient's condition and response to interventions. These include, but are not limited to:

3.4.1.1. Provide ventilations via an MVD at a rate of one breath every 6 seconds if continuous waveform capnography is not available; if continuous waveform capnography is available ventilate so that ETCO₂ measurements remain within normal limits (30-40 mmHg). Monitor for difficulty of ventilation.

3.4.1.2. Monitoring of ETCO₂, assessment for return of spontaneous attempts at breathing, SpO₂ values, equal chest rise and fall, and bilateral breath sounds.

3.4.1.3. Cardiac monitoring, obtaining vascular access and assessment of the patient's hemodynamic status (e.g.: blood pressure/mean arterial pressure; skin colour, temperature, moisture level and capillary refill time).

3.4.1.4. Assessment of patient's level of consciousness and need for analgesia/sedation.

3.4.1.5. Suctioning of oral cavity as necessary.

Note: *If secretions are suspected to be in the laryngeal tube itself, a sterile soft flexible suction catheter that is less than ½ the internal diameter of the laryngeal tube can be inserted to a depth of no greater than the distance measured from the tip of the patient's nose to their earlobe (trying to insert a suction catheter deeper than this in a laryngeal tube can lead to damage of airway structures and can cause laryngospasm). A suction force of -80 to -120 mmHg is generally necessary and suctioning attempts should not exceed 10 seconds. If secretions create an obstruction beyond the tube, then the laryngeal tube should be removed and replaced with a different advanced airway device.*

3.4.1.6. Assessment and documentation of vital signs as appropriate for the patient's clinical condition and with every noted change in condition.

3.5. Documentation

3.5.1. Document the following on the appropriate clinical record:

- Assessment findings that indicate the need for laryngeal tube insertion
- Size of Laryngeal tube used
- Date and time of insertion
- Amount of air used to fill cuffs
- Depth of insertion
- Number of insertion attempts
- Any difficulties with ease of placement
- Confirmation of insertion (i.e. ETCO₂ measurement) and adequacy of ventilation
- Securement methods used
- All interventions and assessments
- Name of person(s) performing procedure(s)

3.6. Removal of the Laryngeal tube (see 2.4):

3.6.1. Supplies:

- PPE
- Plastic-backed absorbent pad
- Syringe large enough to deflate cuffs
- O₂ setup with flow regulator and oxygen tubing
- MVD and mask of appropriate size for patient
- O₂ supplies – Non-rebreather mask or simple face mask, and O₂ tubing according to assessment of patient needs following removal.
- Stethoscope
- Suction (wall or portable)
- 2 types of suction catheters and tubing – Yankuer suction and a sterile, flexible suction catheter

3.6.2. Procedure:

- 3.6.2.1. Perform hand hygiene and don PPE.
- 3.6.2.2. Place the plastic-backed absorbent pad on the patient's chest.
- 3.6.2.3. Position the patient with the head of the bed elevated if not contraindicated.
- 3.6.2.4. If applicable, remove the gastric tube: turn off suction and disconnect the gastric tube from the collection unit; remove gastric tube securements; then grasp the tube firmly and remove.
- 3.6.2.5. Suction the oral cavity above the cuff.
- 3.6.2.6. If the patient is able to cooperate, instruct the patient to take a deep breath in; while the patient is at the peak of inspiration, use a syringe to quickly deflate both cuffs fully (until the single valve/pilot balloon is collapsed) and then remove the laryngeal tube by pulling it upwards and anteriorly in a continuous motion. Encourage patient coughing following this.
- 3.6.2.7. Apply supplemental O₂ and continue nursing interventions as per the patient's clinical condition.
- 3.6.2.8. Discard supplies, remove PPE, and perform hand hygiene.
- 3.6.2.9. Document the procedure in the patient's record including assessment findings that indicated the need for removal.

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LTS-D Specifications

Size	Weight/height	Colour of Connector	Cuff Inflation Volume (max. cuff pressure less than 60 cm H ₂ O)	Max. Gastric Tube	External Tube Diameter	Fiberoptic via Ventilation Lumen
0	Less than 5 kg	Transparent	max. 10 mL	10 Fr	9 mm	Less than 3 mm
1	5-12 kg	White	max. 20 mL	10 Fr	9 mm	Less than 3 mm
2	12-25 kg/90-115 cm	Green	max. 35 mL	16 Fr	14 mm	Less than 4 mm
2.5	25-35 kg/105-130 cm	Orange	40-45 mL	16 Fr	14 mm	Less than 4 mm
3	122-155 cm (4-5')	Yellow	50-60 mL	18 Fr	17.6 mm	Less than 6 mm
4	155-180 cm (5-6')	Red	70-80 mL	18 Fr	17.6 mm	Less than 6 mm
5	Greater than 180 cm (6')	Purple	80-90 mL	18 Fr	17.6 mm	Less than 6 mm

Note: the specifications for pediatric LTS-Ds are here for reference only so that this list is complete – RNs are not to insert these airway devices in pediatric patients.