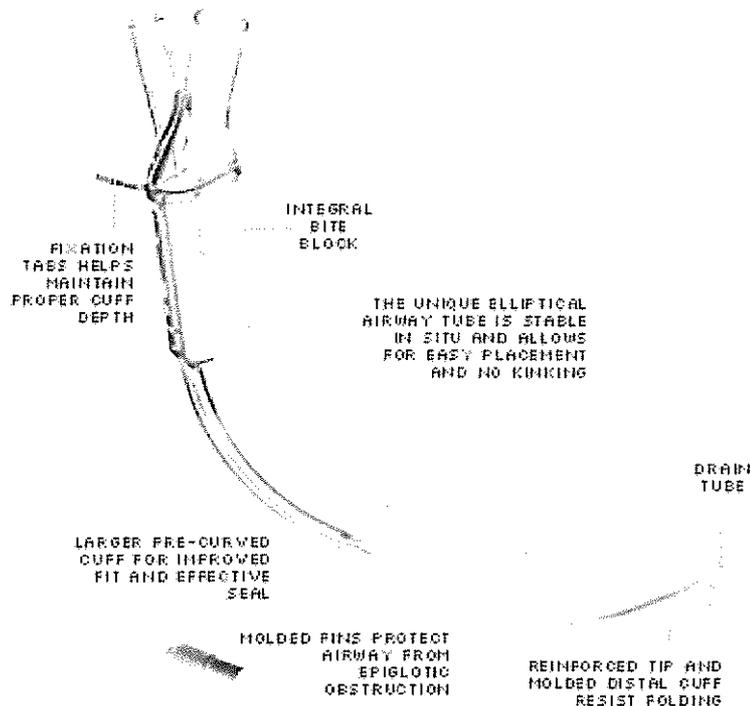


LMA supreme

- Introduced in the late 2007. It represents the most advanced laryngeal airway yet developed by Archie Brain.

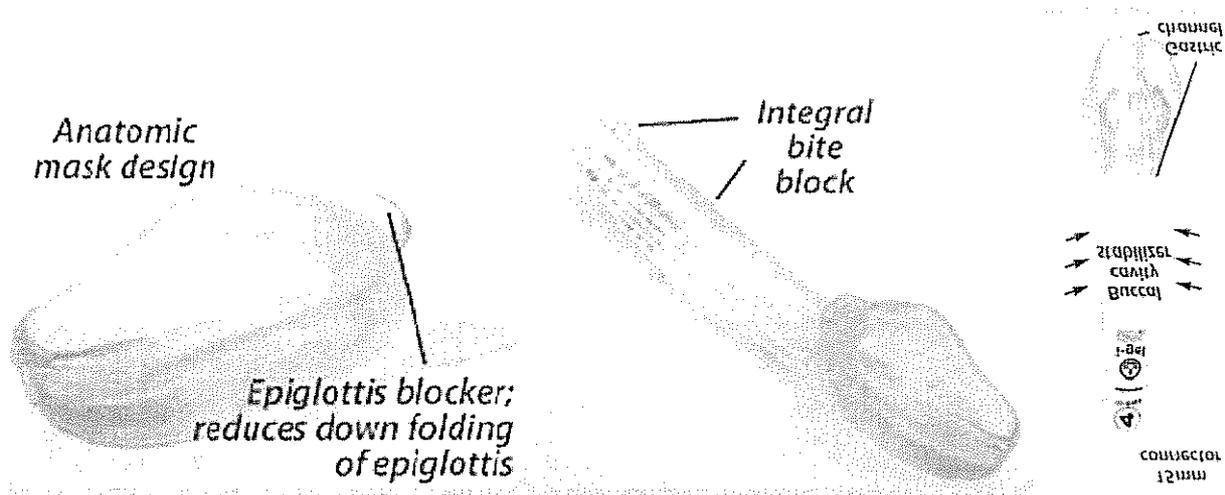
Features :

- ↓ Single use
- ↓ Anatomic curve that facilitates easy insertion
- ↓ The tip of the deflated LMA supreme points more anteriorly than a deflated LMA unique, making it less likely to fold back on itself during insertion
- ↓ A drain tube to allow gastric aspiration
- ↓ A high volume/ low pressure cuff which generates higher seal pressure (36.1 vs 27.4 cm H₂O of LMA unique)
- ↓ A built-in bite block and fixation tab to help secure the airway
- ↓ An oval airway cross section for improved stability of the airway



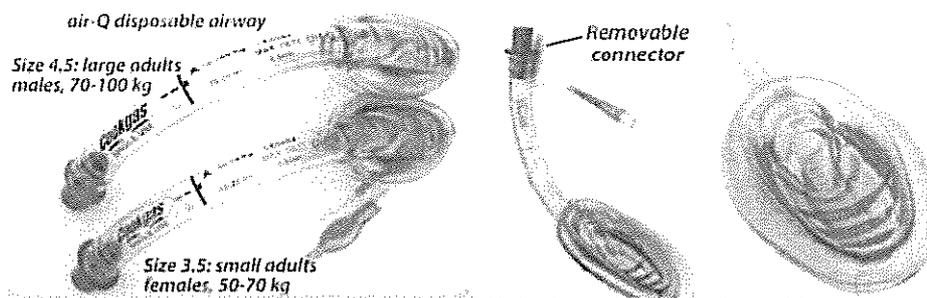
The I-gel: a single use supraglottic airway without an inflatable cuff

- 1) Mask is made of a thermoplastic elastomer (SEBS-Styrene Ethylene Butadiene Styrene) that has the flexibility and feel of human tissue. Upon insertion, it adapts to the patient's airway.
- 2) Advanced anatomic mask design mirrors perilaryngeal anatomy and provides effective seal without a cuff.
- 3) Firmness of material and tip design permit easy insertion, without back-folding of leading edge. Lateral stability and midline positioning are promoted by broad back of mask and buccal cavity stabilizer.
- 4) A gastric channel runs from the proximal connector to the mask tip and allows for suctioning and placement of a nasogastric tube.



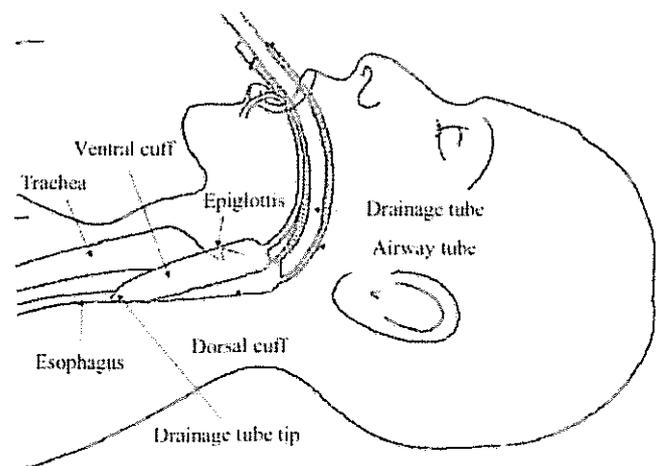
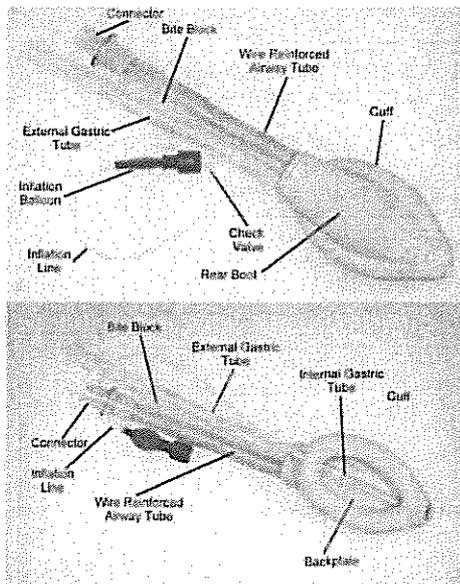
The air-Q : a single use supraglottic airway with advanced design features for both ventilation and fiberoptic intubation

- 1) Easy insertion due to mask shape and firmness of leading edge. Mask tip does not fold down or back upon insertion.
- 2) Undersurface of mask has broad flat shape that promotes midline placement, lateral stability, and ideal supraglottic position.
- 3) Removable connector, short wide-bore tube section, and keyhole outlet all facilitate fiberoptic intubation.



The LMA ProSeal

- ↓ The LMA ProSeal is a reusable supraglottic airway device that incorporates a gastric drainage tube placed lateral to the main airway tube and which ends at the tip of the mask.
- ↓ The gastric drainage tube is designed to separate the gastrointestinal and respiratory tracts, allowing regurgitated fluid to pass up the drain tube and bypass the glottis, thereby protecting the airway from soiling in the event of passive regurgitation.
- ↓ An important additional design feature is that a second, dorsally-located, cuff helps improve the airway seal, a particularly useful feature when positive pressure ventilation is desired.
- ↓ These design features were intended to achieve a better seal than an ordinary LMA permits, allowing patient ventilation using higher-than-usual airway pressures, as well as to reduce the likelihood of aspiration (because of the gastric drain tube).
- ↓ There have been several reports where the LMA ProSeal has extricated patients from "cannot intubate /cannot ventilate" patients, where the LMA Fastrach and fiberoptic bronchoscope (FOB) were unsuccessful.



Insertion of the ProSeal LMA should be carried out following one of the manufacturer's three recommended insertion techniques:

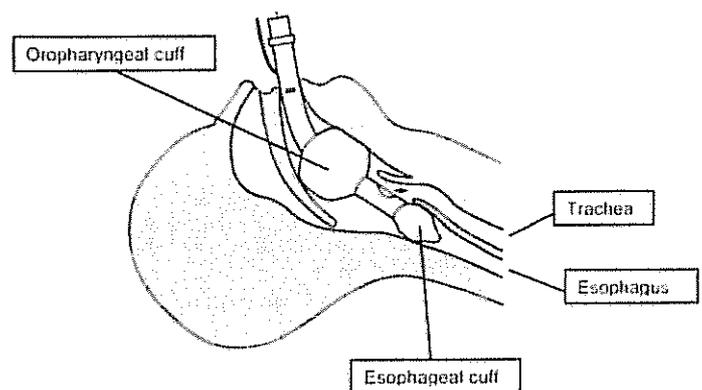
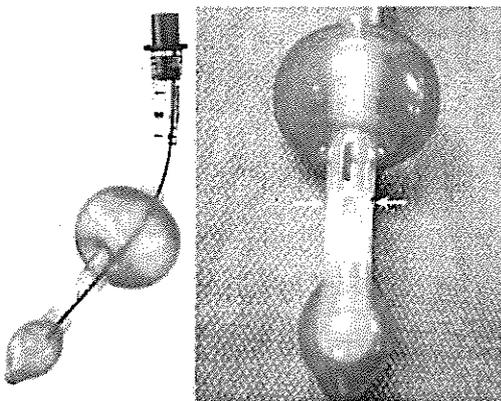
- ↓ Insertion using a special metal introducer instrument
- ↓ Insertion using an index finger
- ↓ Insertion using a thumb

At least three malpositions for the ProSeal LMA are known to occur:

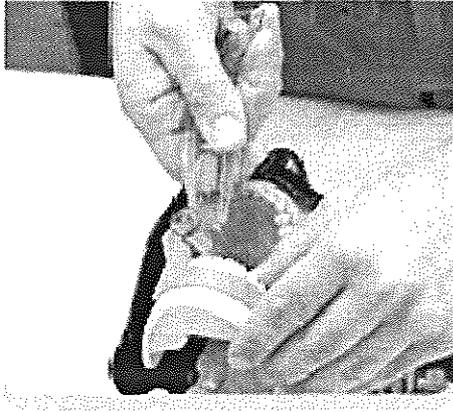
- insertion at an insufficient depth,
 - insertion into the glottis, and
 - ProSeal LMA tip folded backwards behind the bowl against the posterior pharyngeal wall.
- ↓ Entry near or into the glottis may be quickly recognized as follows: after insertion of the unit and cuff inflation one places a dab of lidocaine gel or surgical lubricant at the end of the drainage port; with correct placement of the ProSeal LMA the gel should not bulge in and out with ventilation. Problems :
 - ↓ Less suitable than LMA Fastrach as an intubation device because of the narrower airway tube. The high resistance associated with the smaller lumen may make it less suitable for use with spontaneously breathing patients than other devices.
 - ↓ It may be more difficult and take slightly longer to insert than the LMA classic in adults, although overall success is equivalent.
 - ↓ It can cause airway obstruction after insertion, either by compressing the supraglottic and glottic structures or by cuff infolding.
 - ↓ Partial upper airway obstruction during spontaneous ventilation may result in aspirating air through the drain tube into the esophagus. Esophageal insufflation can occur simultaneously with venting from the drainage tube during positive pressure ventilation with malposition. This may result in inadequate ventilation.
 - ↓ It may not be possible to insert a gastric tube in some patients. This may be due to selection of too large a tube, inadequate lubrication, using a cooled gastric tube, cuff overinflation, or malposition.
 - ↓ It is relatively contraindicated for intraoral surgery because it cannot be moved easily around the mouth, the drainage tube is vulnerable to occlusion, and the larger proximal cuff could interfere with the surgical field.
 - ↓ It has a shorter life span than the LMA classic.

Laryngeal Tube

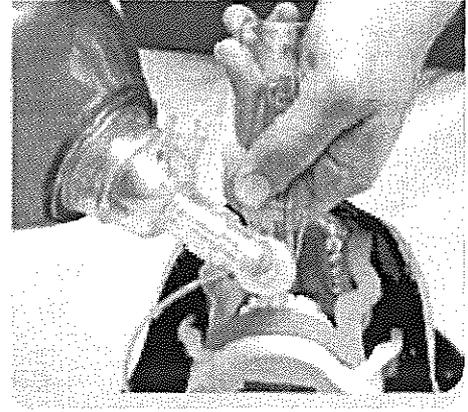
- ❖ The Laryngeal Tube (LT) and its American variant the King LT are supraglottic airway devices that have met with recent interest in the airway community.
- ❖ Created as an alternative to tracheal intubation or mask ventilation, this product was designed to permit positive pressure ventilation as well as to allow for spontaneously breathing patients.
- ❖ The LT consists of a large bore tube with a large asymmetric balloon cuff at its middle part (proximal cuff) and a small balloon cuff located at the tip (distal cuff). There are two distal apertures in the tube between the two cuffs, through which gas movement takes place.
- ❖ A known disadvantage of the LMA is its inability to protect the airway from the aspiration of gastric contents. Assuming an adequate seal, the distal esophageal cuff provides an invaluable means of airway protection. By blocking the opening of the esophagus, the King LT should minimize the risk of aspiration.
- ❖ The mean leak pressure for the LT (28 cm H₂O) was significantly greater than that for the classic LMA (21 cm H₂O)
- ❖ The LT was as effective as the classic LMA at providing a patent airway during controlled ventilation of the lungs, and that the laryngeal tube gave a significantly greater sealing pressure than the classic LMA.



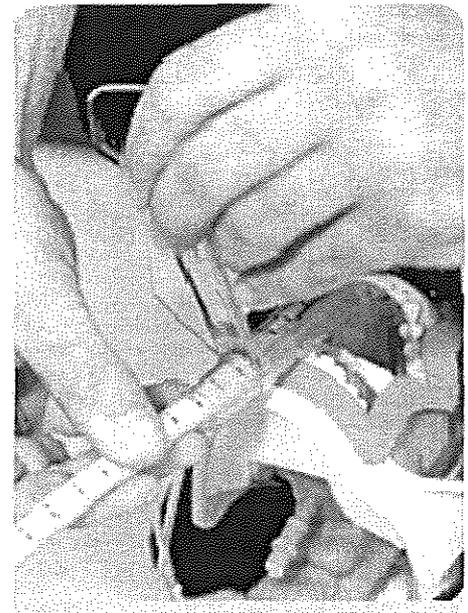
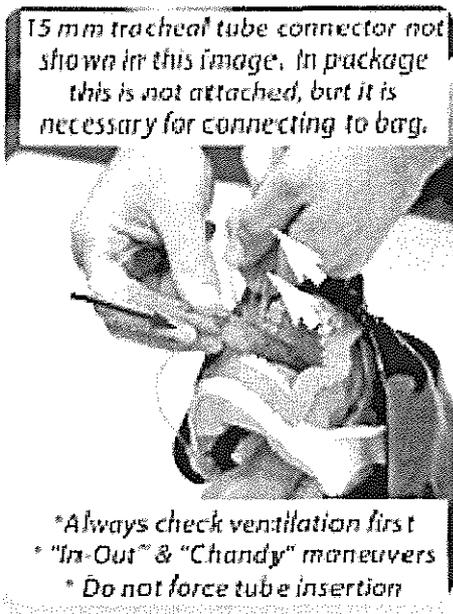
Left: The King LT ; Right: View of ventilatory holes of the King LT™ (main oval-shaped apertures and 2 lateral ventilatory openings.)



A slight withdrawal and reinsertion of the device helps advance the tip of the mask under the epiglottis. The mask is then inflated. Many clinicians use less than the recommended inflation volumes marked on the handle.



Bag the patient and optimize ventilation by slight adjustment of the handle. Capnographic wave forms are the ideal way to verify proper location of the mask over the laryngeal inlet before blind intubation.



If resistance is felt, try repeating "in-out" maneuver of mask and reinserting tube.

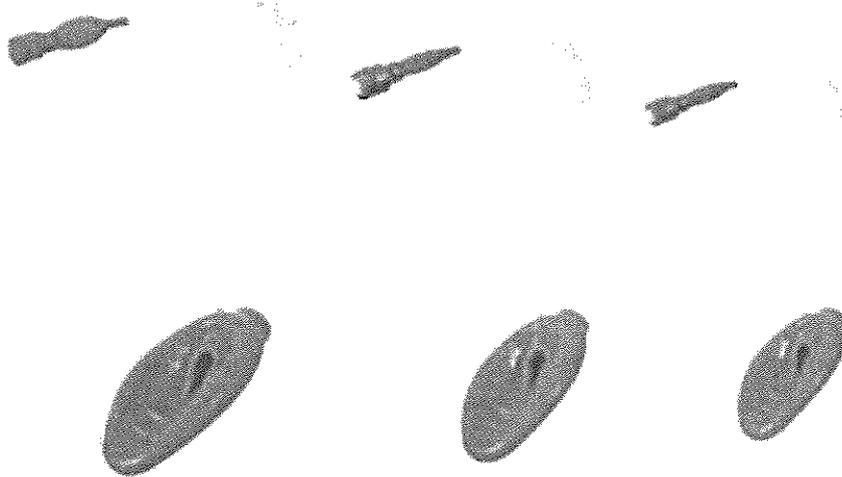
Problems :

1. The rigid shaft cannot easily adapt to a change in the position of the patient's neck. It is more likely to be dislodged than the LMA classic if head or neck manipulation is required. It should not be used in cases where the patient will be in the prone position.
2. Unsuitable for use in the MRI unit.
3. The large diameter of the LMA Fastrach airway tube can cause difficulty during insertion in the patient with a limited mouth opening and may put dentition at risk. Compared with the LMA classic, the LMA Fastrach causes an increased incidence of sore throat, sore mouth, and difficulty swallowing.
4. Intubation through LMA Fastrach may cause significant motion of the cervical spine. It may be difficult to insert in the patient with a cervical collar, especially if cricoid pressure is used.

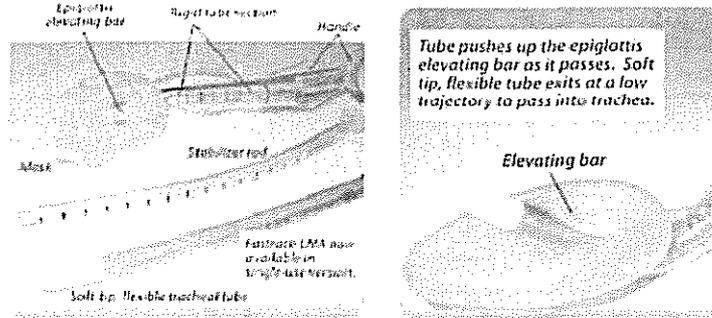
Intubating Laryngeal Airway (ILA)

- The Intubating Laryngeal Airway (ILA) is a supraglottic airway that can either be used as a primary airway or as a means for allowing intubation for endotracheal tubes size 5.0 to 8.5.
- The unit is reusable and can be autoclaved up to 40 times.
- Once intubation via the ILA has been accomplished, one can easily remove the ILA without dislodging the endotracheal tube using a reusable "ILA Removal Stylet"
- the unit is available in three sizes: the 2.5 size is used on pediatric patients, the 3.5 size on small adults or female patients and the 4.5 on large adults or male patients.

▪ size	▪ Patient weight (kg)	▪ Maximum tracheal tube size
▪ 2.5	▪ 20-50	▪ 6.5
▪ 3.5	▪ 50-70	▪ 7.5
▪ 4.5	▪ 70-100	▪ 8.5



The LMA Fastrach: A unique device capable of rescue ventilation and blind intubation (LMA North America)



LMA Fastrach features:

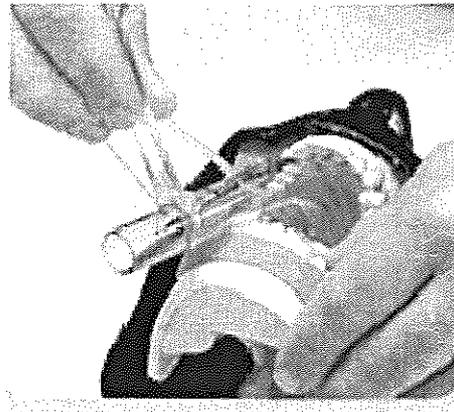
- 1) A short, large-bore tube section;
- 2) an epiglottis elevating bar
- 3) a custom designed, flexible tracheal tube

Tube pushes up the epiglottis elevating bar as it passes. Soft tip, flexible tube exits at a low trajectory to pass into trachea. Fastrach LMA now available in single use version.

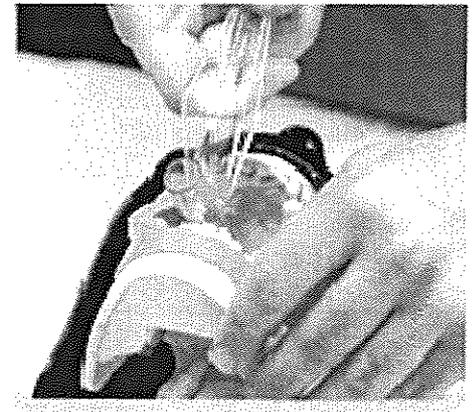
LMA Fastrach Insertion Technique



Size 4 recommended for most adult females, 5 for most males. Lubricate back of mask. Fastrach must be rotated into proper position. Start by having curved tube contact chin, then roll backward.



Advance by keeping back of mask in contact with soft palate and posterior pharynx as it is placed. Do not lift upward on handle at this point, as this can cause down-folding of epiglottis.



On full insertion, the tube section of the device is oriented somewhat caudally, parallel to the inner surface of upper incisors.

Laryngeal Mask Airway (LMA North America)

- 1) Wedge-shaped inflatable mask fits over larynx, creating seal within upper airway. Patient must have absent gag reflex.
- 2) Tip of wedge fits into upper esophagus and bowl of mask covers laryngeal inlet. Minimal regurgitation protection.
- 3) Numerous models including disposable version (LMA Unique) and intubating LMA (Fastrach).
- 4) Numerous sizes from pediatric to adult; typical adult female requires #4 LMA, typical adult male #5 LMA.
- 5) Recommended insertion technique (LMA Unique, Classic): With mask deflated, lubricate undersurface, using fingers at base of bowl, push mask down throat, up against palate, and backward to posterior hypopharynx, until bowl is around curvature of tongue.
- 6) Best seal pressure is with under-inflation of mask; recommended volume is 30 cc for #4 , and 40 cc for #5--many users start with half this volume and listen over the neck for a cuff leak. If cuff leak, try smaller mask volume or larger LMA.
- 7) Cricoid pressure prevents optimal placement and pushes tip out of upper esophagus.

Problems :

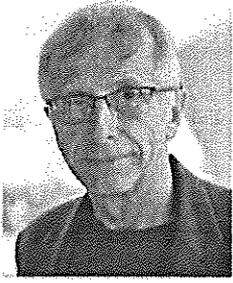
1. Kinking & compression
2. The small diameter of the tube limits the size endoscope or tracheal tube that can be passed through LMA flexible. It has been recommended that prolonged spontaneous ventilation be avoided because the smaller tube causes increased resistance.
3. The metallic rings of LMA flexible will cause image distortion if used for MRI imaging.

LMA size	Patient size (kg)	Maximum cuff volume (ml)
1	Neonates up to 5	4
1.5	Infants 5-10	7
2	Children 10-20	10
2.5	Children 20-30	14
3	Patients 30-50	20
4	Patients 50-70	30
5	Patients 70-100	40
6	Patients over 100	50

Manufacturers recommendations for LMA selection & cuff inflation

Laryngeal Masks

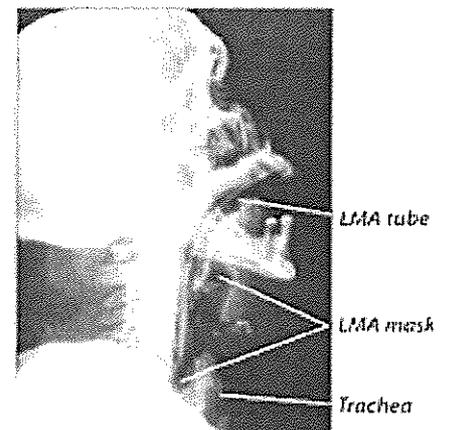
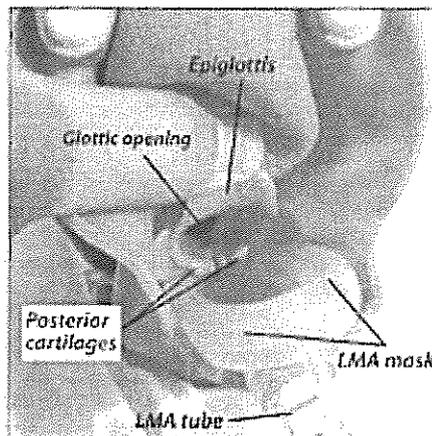
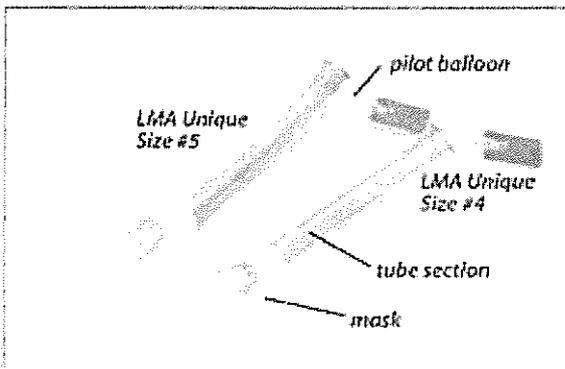
Archie I J Brain



Born	July 2, 1942 (age 68) Kobe, Japan
Nationality	British
Fields	Anaesthesia
Alma mater	University of Oxford
Known for	Inventor of laryngeal mask airway

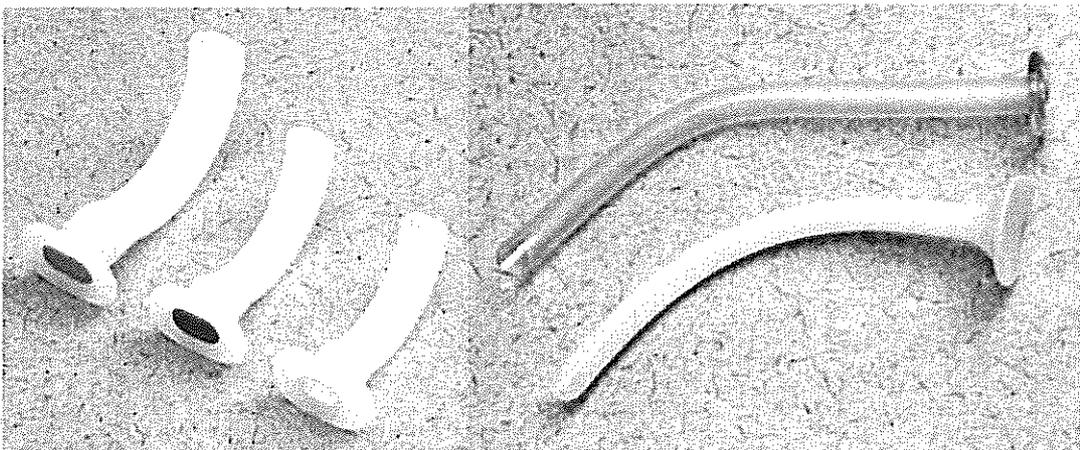
- Soon after the laryngeal mask airway became popular in elective anesthesia it became apparent that the device had a distinctly valuable role in cannot intubate, cannot mask ventilate situations.
- Cricothyrotomy, whether using an open or percutaneous technique, has an average time requirement of 75-100+ seconds. The LMA, and other supraglottic ventilation devices, such as the iGel, AirQ, and King LT, can provide ventilation in less than 20 seconds. Additionally, the performance of these devices is not affected by the patient characteristics that negatively affect mask ventilation, laryngoscopy, and surgical airways (such as obesity, limited neck movement, facial hair, etc.).
- Having a means of rescue ventilation should intubation and mask ventilation fail is a requirement for safe practice in emergency airway management.

LMA Unique positioned over laryngeal inlet in pharyngeal model (center) and on lateral neck radiograph (right).



Oropharyngeal airway (OPA)

- A curved piece of plastic inserted over the tongue that creates an air passage way between the mouth and the posterior pharyngeal wall.
- Useful when the tongue and/or epiglottis fall back against the posterior pharynx in anesthetized or unconscious patients obstructing the flow of air.
- The preferred technique is to use a tongue blade to depress the tongue and then insert the airway posteriorly. An alternate technique is to insert the oral airway upside down until the soft palate is reached. Rotate the device 180 degrees and slip it over the tongue.
- Be sure not to use the airway to push the tongue backward and block, rather than clear, the airway. This device is poorly tolerated in conscious patients and may induce gagging, vomiting and aspiration.



Nasopharyngeal airway

- Also known as trumpets, nasopharyngeal airways are inserted through one nostril to create an air passage between the nose and the nasopharynx.
- The NPA is preferred to the OPA in conscious patients because it is better tolerated and less likely to induce a gag reflex.
- The length of the nasal airway can be estimated as the distance from the nares to the meatus of the ears and is usually 2-4 cm longer than the oral airway. Any tube inserted through the nose should be well lubricated and advanced at an angle perpendicular to the face (remember: the floor of the nose is the roof of the mouth!). Use a nostril that is unobstructed.
- While nasopharyngeal airways are better tolerated than oropharyngeal airways in awake or lightly anesthetized patients, they are contraindicated in patients who are anticoagulated, patients with basilar skull fractures, patients with nasal infections and deformities as well as in children (because of risk of epistaxis).