

The McMurray Enhanced Airway (MEA)

A fast, easy-to-use airway device to open the upper obstructed airway

The MEA is a new airway management device designed by an anesthesia professional to quickly and effectively open an obstructed upper airway. Today's patients often present with an increased risk of upper airway obstruction and apnea due to an abundance of redundant tissue in the distal pharynx. Patients who are obese, older or have sleep apnea are prone to distal pharyngeal tissue redundancy that contributes to airway obstruction.

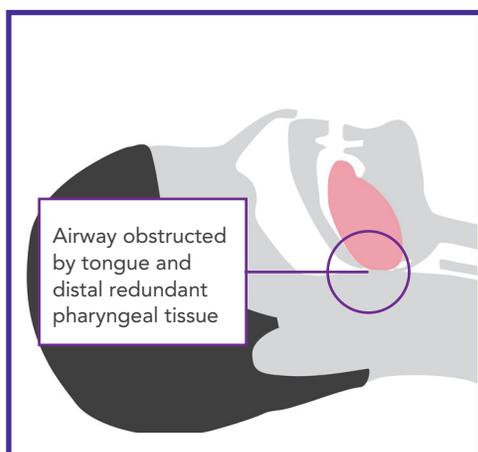
Existing airway devices have not evolved significantly over the last 100 years despite changes in the distal pharynx and redundant tissue. This results in a void in contemporary airway management.

The MEA's unique design stents open the unconscious patient's airway beyond the tongue supporting breathing, oxygenation and ventilation. Adverse respiratory outcomes from inadequate ventilation and oxygenation are the most reported ASA closed claims for monitored anesthesia care (MAC) between 2003 and 2012, yet were found to be preventable.^{1,2} The challenges of keeping the upper airway open at a moment's notice, particularly during sedation cases, has led to workarounds. These include adapting airway tools meant for other uses (e.g., using nasal airways orally) or requiring additional physical positioning maneuvers like chin lift and jaw thrust. Patients often emerge from anesthesia with sore, bruised jaws and chins that can linger for days. Healthcare professionals also often need to hold patients' heads in position for the duration of the procedure and into recovery.

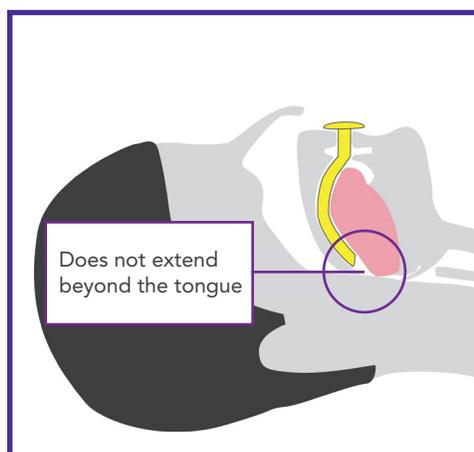
We can do better.

The MEA

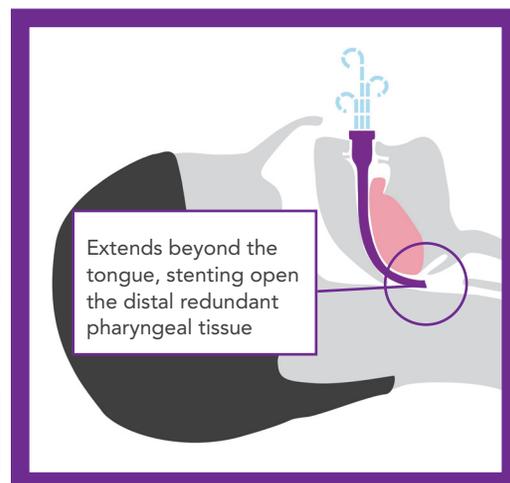
Complete Obstruction of the Airway



Traditional Pharyngeal Oral Airway



Distal Pharyngeal Airway



For more information or to place an order visit: www.mcmurraymed.com

The MEA Advantages

Intuitive, fast and easy insertion to quickly open the obstructed airway to improve breathing.

To place - No rotation, tongue depressor or lubrication needed to insert. Place midline, follow the hard palate, and slide between the molars. The narrow MEA profile also allows for a narrow mouth opening.

Soft, flexible materials help prevent postoperative sore throat, gagging, coughing, and oropharyngeal structure damage.



Longer tubing displaces the redundant distal pharyngeal tissue that often blocks sedated or unconscious patients' airways. This displacement helps establish and maintain a patent airway, which helps improve ventilation and reduce hypoxia and respiratory compromise.

Integrated cushioned bite block helps avoid dental damage.

Built-in flange helps keep the device in place.

Optional connector: The MEA, when attached to a manual resuscitator or anesthesia circuit, can be used for intraoral ventilation.



Placed orally - eliminates nose bleeds: Because many people are anti-coagulated or take aspirin, if a nasal airway is placed, the risk of a nosebleed increases.

Fits easily alongside an endoscopy bite block to avoid aborting a case due to airway obstruction.



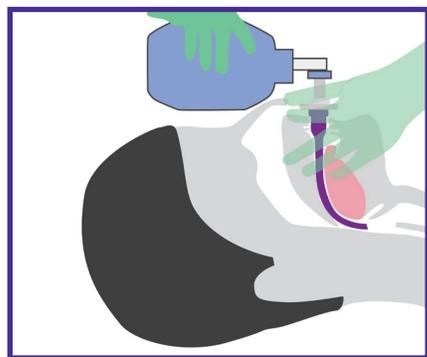
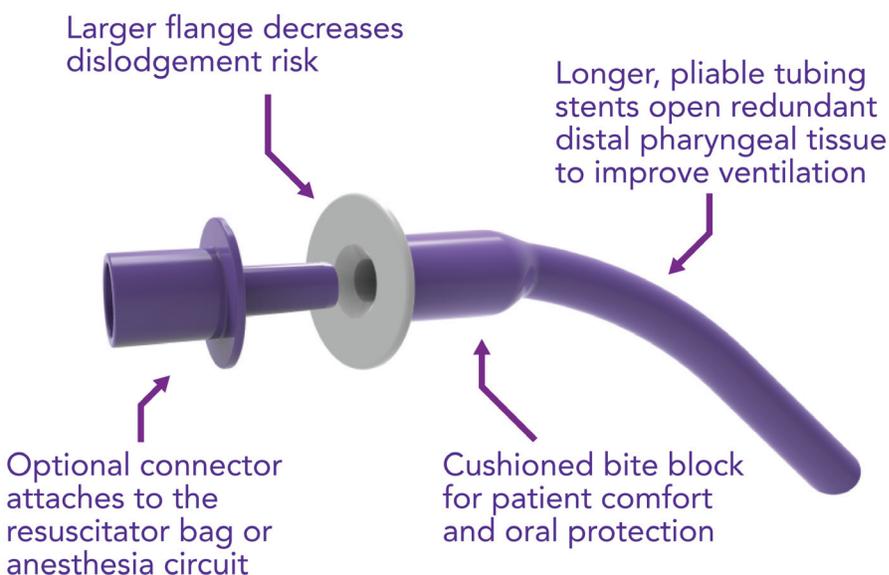
Helps reduce fire risk - when connected to the anesthesia circuit

The MEA is designed to improve outcomes, convenience and reduce surgery costs

Intraoral ventilation manually or with mask:

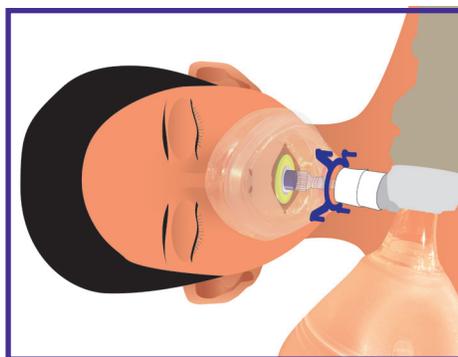
Positive pressure mask ventilation (PPMV) can be challenging in obese, OSA, edentulous, or bearded patients where creating a tight seal may be difficult.

- Intraoral ventilation bypasses PPMV difficulties
- Places oxygen closer to lungs
- Less ventilation effort
- Buys time before intubation



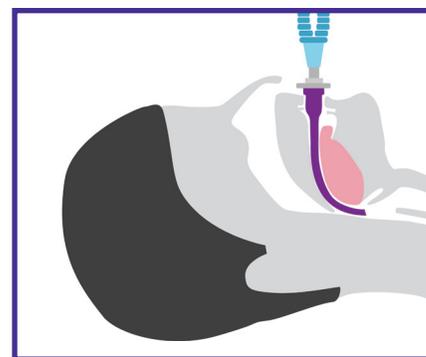
Intraoral ventilation manually

1. Place MEA on the right-side corner of the lips
2. Couple MEA to manual resuscitator or anesthesia circuit
3. Place the patient's chin in the provider's left palm
4. While pinching nose closed with thumb and index finger, bring lips up and seal with palm
5. Apply positive pressure manual ventilation



Intraoral ventilation with mask

1. Place MEA midline
2. Attach straight connector (not included) to the MEA connector
3. Place straight connector through the mask's hole
4. Couple to manual resuscitator or anesthesia circuit
5. Apply positive pressure manual ventilation



Helps reduce fire risk under sedation

1. Connect MEA to anesthesia circuit
2. Use low total liter flows ~1L
3. Adjust FiO₂ <30%
4. Fine-tune APL value to eliminate pressure on breathing bag and oxygen diffusion around the surgical area

Peer-Reviewed Study

A recent MEA use-assessment survey study involved 54 anesthesia providers from 15 U.S. surgery locations. Providers were instructed on MEA use and trialed the airway in adult patients experiencing an upper airway obstruction under deep sedation/MAC. This pilot study demonstrated that the novel extended airway is an effective and satisfactory method for anesthesia providers to alleviate airway obstruction during deep sedation.³ For a list of MEA studies visit: www.mcmurraymed.com/news

How the MEA contributes to value-based care, quality improvement and cost management

- **Creates airway patency for a broader population.** Without a solution like the MEA, patients who are older, obese or who have apnea might not otherwise be eligible for (lower-cost) ambulatory surgery procedures using sedation and regional/local anesthesia. Sedation anesthesia keeps the patient comfortable and spontaneously breathing and facilitates faster OR turnaround (OR time is valued at \$7-\$190/minute), shorter postoperative patient recovery, and reduced opioid use compared to general anesthesia.^{4,5}
- **Helps decrease risks associated with** 1) potential respiratory compromise due to inability to obtain or maintain a patent airway; 2) off-label airway management practices; 3) surgical fires; and 4) dental damage risk to front incisors.
- **Patient satisfaction:** Patients often complain of a sore chin or jaw, or jaw bruising and dislocation after surgery following chin lift or jaw thrust maneuvers used to keep their airways open.⁶ This may result in lower patient satisfaction scores and associated reimbursement.
- **Provider satisfaction:** The MEA eliminates the need for chin lift or jaw thrust maneuvers, both of which can lead to clinician fatigue or hand pain⁷ and occupy hands from so they cannot be used for other critical tasks.
- **Both patients and providers:** The MEA is fast and easy in establishing upper airway patency to keep patients breathing—a major determinant of patient outcomes. Also, the MEA decreases adverse side effects associated with current oral airway use such as coughing, gagging, postoperative sore throat and oral or dental damage. The MEA features a narrow-diameter, flexible tubing. Because it's placed orally, it also avoids mucosal damage or epistaxis associated with nasal airways that might otherwise be used.⁸
- **The MEA is made in the USA and cost-competitive** with other currently available airway devices.

Results include:

100%

successful in
establishing and
maintaining a
patent airway
(n=86 surveys)

98%

allowed for a
"hands-off" approach

93%

of respondents agreed
that the MEA was easy to
place

86%

said the MEA would
improve airway
management practice and
patient outcomes

References

1. Mora, et al. Adv Anesth. 2018;36(1):231-49.
2. Larson, et al. AANA J. 2018;86:201-8.
3. McMurray, et al. Enliven: J Anesthesiol Crit Care Med. 2021;8(2):002.
4. Song, et al. Anesth & Analg. 2000;91(4):876-881.
5. Caggiano, et al. J of Hand Surgery. 2015;40(6):1202-09.
6. Dellon, et al. Case Rep Gastroenterol. 2016;10:146-150.
7. McMurray, et al. AANA J. 2020;88:123-129.
8. Ducanto J, et al. Airway Management. 4th ed. Philadelphia, PA: Elsevier. 2018;309-317.