

2019 Maine EMS Comprehensive Airway Review Program

The purpose of this outline is to provide a list of the airway topics that must be covered in a comprehensive airway review program. The ability to effectively manage an airway is key to reducing the morbidity and mortality of critically ill or injured patients. Proficiency in airway management requires regular training and quality review of airway cases. Airway skills are a low frequency/high risk skill set, which means that review and practice should happen frequently throughout the year.

The comprehensive review outlined in this document, provides the guidance needed to assure all areas of airway management are covered. The review will include:

- Airway management strategies for geriatric, adult, and pediatric populations.
- Airway management techniques with an emphasis on best practices and skill development.
- Performance of both common and seldom used airway management skills with peer review and feedback.
- Development of critical thinking skills for assessing patient needs and utilizing the best techniques and equipment to achieve patient goals as related to airway management.
- Best practices for documentation of airway management.

The teaching content must be derived from recent or continually substantiated, evidence based, peer-reviewed, and reputable research. Each instructor should develop their comprehensive airway program using resources – including people and equipment - that are available within their EMS service, region, state and nationally. The regional EMS medical director and EMS training centers can serve as resources for both content expertise and equipment. Ideally the equipment used for airway training should be the same as used for actual field practice. Human models (live people), as appropriate for non-invasive skills such as ventilation with a bag valve mask device, as well simulation mannequins for invasive procedures should be used to practice and develop airway skills and techniques. Maine EMS airway protocols should be reviewed. The goal is to prepare EMS providers at all levels to proficiently manage airways at the level of their scope of practice, assist other members of the EMS team with airway management, apply critical thinking skills to assessment and the airway needs of the patients and provide thorough, organized documentation of airway management.

Topics

Airway Assessment and Monitoring

- 1. Anatomy Review of Airway:**
 - a. Upper and lower airway
 - b. Ventilation versus respiration
 - c. Gas exchange
 - d. Procedural landmarks

2. Opening the airway

- a. Airway maneuvers
- b. Positioning
- c. Padding
- d. Airway adjuncts – oral and nasal

3. Assessing need for airway maintenance

- a. Inspecting the airway
 - i. Mouth opening and size*
 - ii. Facial hair and tissue*
 - iii. Teeth/Dentures*
 - iv. Obstructions*
 - v. Blood and other secretions*
 - vi. Surgical openings (E.g. stoma, tracheostomy)*
- b. Adequacy of patient ventilation and oxygenation
 - i. Rise and fall of chest*
 - ii. Symmetry*
 - iii. Rate, rhythm, quality, and depth*
 - iv. Level of consciousness*
 - v. Lung sounds*
 - vi. SpO₂*
 - vii. EtCO₂*
 - viii. Other contemporary monitoring devices*
- c. Anticipating complications
 - i. Difficult airway assessment methods and mnemonics*
 - ii. Pre-existing conditions*
 - iii. Injuries*
 - iv. Structural abnormalities*
- d. Documentation of airway assessment

4. Clearing the airway

- a. Positioning
- b. FBAO removal techniques
- c. Magill forceps
- d. Suction methods and devices
 - i. Techniques for suctioning the upper airway*
 - ii. Techniques for suctioning the lower airway*
 - iii. Usage and selection of suction catheters and device*

5. Continuous Positive Airway Pressure (CPAP)

- a. Decision-making process
 - i. *Advantages and disadvantages*
 - ii. *Indication and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed
- c. Sizing
- d. Positioning of patient
- e. Placement technique
- f. Assessing placement
- g. PEEP and FiO₂ selection
- h. EtCO₂ Monitoring
- i. Medication usage with CPAP
- j. Removal
- k. Documentation
- l. Troubleshooting

6. End tidal Carbon Dioxide and Capnography

- a. Waveform identification
- b. Treatment indications based on capnometry and capnogram

Ventilation Devices and Adjuncts

1. Bag Valve Mask Device (BVM)

- a. Bag-valve device selection
- b. Mask selection and placement
- c. Mask seal techniques and strategies
- d. Ventilation rates and depth
- e. ETCO₂
- f. Troubleshooting
- g. Special conditions –
 - i. *E.g. Head injury, asthma, etc.*

2. Extra-Glottic Airway Device: Preparation and Insertion

- a. Decision-making process
 - i. *Advantages and disadvantages*
 - ii. *Indications and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed and checklist
- c. Back up equipment
- d. Sizing
- e. Positioning of patient and airway
- f. Placement technique
- g. Securing device
- h. Confirming placement

- i. ETCO2
- j. Placement of gastric tube
- k. Medications
- l. Removal
- m. Documentation
- n. Troubleshooting
- o. Special conditions –
 - i. *E.g. Head injury, asthma, etc.*

3. Intubation: Preparation and Tube Insertion– Oral, Nasal, Direct and Video Laryngoscopy

- a. Decision making process
 - i. *Advantages and disadvantages*
 - ii. *Indications and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed and checklist
- c. Back up equipment
- d. Sizing
- e. Positioning of patient and airway
- f. Placement technique
- g. Securing device
- h. Confirming placement
- i. ETCO2
- j. Placement of gastric tube
- k. Medications
- l. Removal
- m. Documentation
- n. Troubleshooting
- o. Special conditions –
 - i. *E.g. Head injury, asthma, etc.*

4. Surgical Airway and Needle Cricothyrotomy

- a. Decision-making process
 - i. *Advantages and disadvantages*
 - ii. *Indications and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed
- c. Preparation of equipment
- d. Performing technique
- e. Confirming placement
- f. Securing device
- g. Documentation
- h. Troubleshooting

5. Chest Decompression

- a. Decision-making process
 - i. *Advantages and disadvantages*
 - ii. *Indications and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed
- c. Preparation of equipment
- d. Performing technique
- e. Confirming placement
- f. Securing device
- g. Documentation
- h. Troubleshooting

6. Gastric Tubes

- a. Decision-making process
 - i. *Advantages and disadvantages*
 - ii. *Indications and contraindications*
 - iii. *Assessment of need*
- b. Equipment needed
- c. Preparation of equipment
- d. Performing technique
- e. Confirming placement
- f. Securing device
- g. Documentation
- h. Troubleshooting

7. Protocol Review

- a. Maine EMS – Prehospital Protocols – pertinent protocol review

8. Review of Service-Specific Airway Maintenance/Support Devices

- a. Examples might include; ventilators, Turkel needles, transtracheal jet ventilation, etc.
- b. VL device trouble shooting
 - i. *Screen stops working*
 - ii. *Battery is dead*
 - iii. *Over zoom/under zoom*
 - iv. *Poor picture quality*
 1. *Secretions*
 2. *Improper blade/stylet attachment*