AIRWAY AND TRACHEOSTOMY MANAGEMENT

ALL PROVIDERS

- Focused history and physical exam
- Assess ABC’s for evidence of current apnea, airway reflex compromise or difficulty in ventilatory effort.
- Assess medical conditions, burns or traumatic injuries that may have or will compromise the airway.
- Continuous cardiac, ETCO2, and pulse oximetry monitoring, when available.
- Obtain a 12 Lead EKG when available.

Treatment Plan

- Provide basic airway maneuvers to all compromised airways, i.e. jaw-thrust, airway adjuncts, and oxygen.
- Identify and treat underlying reversible medical conditions (narcotic overdose, hypoglycemia, etc.).
- Provide supplemental oxygen and assisted ventilation for the patient to maintain an oxygen saturation 90-94% and ETCO2 of 35-45.
- Always ensure proper care of the C-spine during airway treatment per the Selective Spinal Immobilization Guideline.
- Keep the patient NPO. Stop any tube feedings and (if time permits) note location of enteral feeding, volume of feeding, formula type, and rate of feeding. This will assist the care facility the patient is transported to.
- Do not use feeding tube during resuscitation.
- Infants and young children are primary nose breathers. Suction oral and nasal passages as needed to keep clear.
- Usually the patient will be accompanied by a parent/guardian or staff familiar with the equipment used and can be asked to discontinue the enteral tube feeding (ETF).
- If the patient is receiving enteral tube feeding ETF, stop this feeding for transport or mask ventilations.
- To stop feeding, power down the pump. Most ETF pumps have a clearly marked ON/OFF button or just an OFF button. Powering down the pump will discontinue the flow of formula to the patient.
- Being careful not to pull or push on the enteral feeding tube inserted into the patient, detach the feeding line adaptor from the feeding tube and place the feeding line in a clean location.
- If time permits use a 60cc Catheter Tip Syringe filled with NS to slowly to clear the line of formula.
- Recap or clamp with the caps or clamp attached to the tube so that it does not leak and no foreign material is introduced back into the tube.

Tracheostomy/Home Ventilator

- Primary caretakers and families are the best resource for understanding the equipment they are using.
- Disconnect the ventilator (Disconnecting a vent poses a very HIGH risk for body fluid exposure and can be dangerous to the patient if done incorrectly, specific instruction should be given toward the procedure for this-see addendum) and assist ventilations with BVM if the patient is apneic, unresponsive, or has severe respiratory distress or depression.
- If unable to ventilate, suction the tracheostomy, then reattempt ventilatory efforts.

ADULT

- Provide Oxygen to maintain saturations of >94%
- Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway when NOT contraindicated (Trach patients, facial fractures, intact gag response, etc)
- Maintain a ventilatory rate of 10-12 breaths per minute
- Do not hyperventilate the patient
- Ventilate to patient’s suggested tidal volumes if patient is on a ventilator
- When available use PEEP to ensure correct ventilation

PEDIATRIC (<15 years of Age)

- Provide Oxygen to maintain saturations of >94%
- Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway when NOT contraindicated (Trach patients, facial fractures, intact gag response, etc)
- BVM is the preferred method of ventilation below the age of 10 years old.
- Recommended pediatric ventilatory rates:
  - Infant (0-12 month): 25 breaths per minute
  - 1-3 yrs: 20 breaths per minute
  - 4-6 yrs: 15 breaths per minute
  - >6 years: 12 (Same as adult)
- Do not hyperventilate the patient

NOTE: Pediatric weight based dosing should not exceed Adult dosing.
Ventilate to patient’s suggested tidal volumes if patient is on a ventilator
When available use PEEP to ensure correct ventilation

**ADULT AEMT**

- Consider an appropriately sized supraglottic airway device (SGD) if unable to ventilate with BVM. Do not insert in a tracheostomy patient.
- **CPAP/BiPAP** – Consider when the patient is awake but needs assistance with oxygenation and ventilation such as in a CHF/Pulmonary Edema patient or COPD patient.
  - Explain the procedure to the patient
  - Initially apply the mask and begin the CPAP or BiPAP according to training instructions.
  - CPAP – Provide 10 L/min oxygen and PAP of 5 cm H2O to begin.
  - BiPAP – Provide 10 L/min oxygen and IPAP at 15 cm H2O with EPAP at about 5 cm H2O
  - If unable to adequately ventilate return to BVM and consider insertion of supraglottic airway and bag ventilation.

† Contact OLMC to discuss further settings and treatment above the initial setup

**PEDIATRIC AEMT**

- Consider an appropriately-sized supraglottic airway device if unable to ventilate with BVM. Do not insert in a tracheostomy patient.
- **BiPAP/CPAP** – ONLY use when the patient is on the machine at home. Maintain home settings and bring machine with the patient. If unable to adequately ventilate return to BVM and consider insertion of a supraglottic airway.

**ADULT PARAMEDIC**

- **Endotracheal Intubation** - Consider orotracheal intubation using an endotracheal tube (ETT) when indicated
- Document TWO confirmation methods to verify endotracheal placement. (e.g. ETCO2, CO2 detection device, or esophageal intubation detector)
- Secure the ETT for transport
- Consider NG/OG tube placement or opening active G-tubes for all intubated patients
- Consider sedation after intubation
- After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.

- **Surgical Airway - Cricothyrotomy**
  - Consider only when all other methods of oxygenation, ventilation and securing the airway have failed.
  - Gather all equipment before beginning the procedure
  - Once the procedure is done insert a 5.0-6.0 cuffed ETT, inflate cuff, and secure

- **Tracheostomy Assistance**
  - Provide supplemental oxygen
  - Suction the patient appropriately
  - Utilize in-line suction device when available
  - Replace disposable inner cannula
  - Attempt suction lavage
  - Replace Tracheostomy tube if needed
  - IF unable to ventilate, pass an appropriately sized ETT through the stoma

**PEDIATRIC PARAMEDIC**

- **Endotracheal Intubation** - Consider orotracheal intubation using an endotracheal tube (ETT) when indicated
- BVM ventilations are the preferred method of ventilation in children, even for long transports.. However, if oxygenation or ventilation is inadequate with BVM, consider direct laryngoscopy for foreign body obstruction, a trial of a supraglottic airway is indicated. In the rare instance that a supraglottic airway is ineffective, then proceed to ETT
- For longer transports, be aware of gastric distension during BVM, which may limit ventilation. An NG/OG tube can be placed to decompress the stomach
- Pediatric ETT’s are sized according to age and are in mm:
  - Preemie: 2.5
  - 0-3 months: 3.0
  - 3-7 months: 3.5
  - 7-15 months: 4.0
  - 15-24 months: 4.5
  - 2-15 years: Formula is (age+16) ÷ 4
- Document TWO confirmation methods to verify endotracheal placement. (e.g. ETCO2, CO2 detection device, or esophageal intubation detector)
- Secure the ETT for transport
- Consider NG/OG tube placement or opening active G-tubes for all intubated patients
- Consider sedation after intubation
• If unable to pass a tracheostomy tube or endotracheal tube, use BVM or orotracheal intubation to ventilate patient (Orotracheal intubation should be an OLMC decision as the tube would need to be placed below the level of the stoma far enough to inflate the bulb)

Contact OLMC for further instructions

Ventilator Management
• Work with the family to troubleshoot the machine
• Address tracheostomy as above
• If you need to disconnect for transport provide adequate BVM ventilations similar to home respiratory rate settings and tidal volume

Contact OLMC for further instructions as needed.

• After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.

Surgical Airway – Cricothyrotomy
• Open Surgical Cricothyrotomy is contraindicated in ages < 12 years old.
• Needle Cricothyrotomy can be used below 12 years of age.
• Consider only when all other methods of oxygenation, ventilation and securing the airway have failed.
• Gather all equipment before beginning the procedure
• Once the procedure is done insert an appropriately sized cuffed ETT and secure.

Contact OLMC for further instructions as needed.

• Tracheostomy Assistance
• Provide supplement oxygen
• Suction the patient appropriately
• Utilize in-line suction device when available
• Replace disposable inner cannula
• Attempt suction lavage
• Replace tracheostomy tube, if needed
• If unable to ventilate, pass an appropriately sized ETT through the stoma
• If unable to pass a tracheostomy tube or endotracheal tube, use BVM or orotracheal intubation to ventilate patient (Orotracheal intubation should be an OLMC decision as the tube would need to be placed below the level of the stoma far enough to inflate the bulb)

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• Work with the family to troubleshoot the machine
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