

Effective Date : November 18, 2018

Last Review: November 2006

Next Review: November 2020

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**Authority:** Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9

**Purpose:** To provide for guidelines in the proper utilization and performance of advanced airway management of pediatric patients, equal to or less than 11 years in age or fits onto length based assessment tape.

**Policy:** Paramedics, Critical Care Paramedics (FP-C or CCEMTP) & Mobile Intensive Care Field Nurse (MICFN) shall use the guidelines contained herein in the management of pediatric patients presenting with respiratory distress.

### 1. Background

Pediatric Cardiopulmonary Failure is rarely a sudden event, but rather is usually the end-result of a progressive deterioration in respiratory, and in the later stages, circulatory function. It is therefore imperative that field personnel provide a thorough assessment of the child's respiratory function. **Early Assessment and Early Aggressive Intervention** is the key to effective intervention in preventable cardiopulmonary failure and arrest in children.

### 2. Assessment

Cardiopulmonary failure/arrest should be anticipated in children presenting with any of the following:

- A. Tachypnea (relative to age)
- B. Bradypnea (particularly ominous)
- C. Diminished level of consciousness or response to pain:
  - 1. Difficult to arouse, lethargy.
  - 2. Child > two months fails to recognize parents (often described by parents as simply "something wrong").
- D. Cyanosis (a late and inconsistent sign):
  - 1. If present in mucous membranes of mouth or nailbeds, usually a respiratory component.
  - 2. If present only in extremities, usually circulatory failure.
- E. Poor skeletal muscle tone.
- F. Increased respiratory effort:
  - 1. Nasal flaring.
  - 2. Intercostal, subcostal and/or suprasternal inspiratory retractions.
  - 3. Head bobbing, grunting, stridor or prolonged expiration (pursed lips i.e. auto PEEP).

\*note - Fatigue must be considered. An infant with tachypnea will tire. A decreasing respiratory rate under these circumstances is an ominous sign.

### 3. Indications for Advanced Airway Management / Supraglottic Airway Device (SAD)

It must be emphasized that proper and early use of high concentration O<sub>2</sub> can often times resolve respiratory distress in children. In cases of inadequate ventilatory rate or volume, **AGGRESSIVE BLS TECHNIQUES** (BVM with BLS airway adjuncts & 100% O<sub>2</sub>) are, in most cases, adequate to provide the necessary ventilatory assistance. The following should be used to guide the Paramedic in determining the need to place a SAD in a pediatric patient (refer to **SUPRAGLOTTIC AIRWAY DEVICES POLICY**):

- A. Whenever airway protection is indicated.
- B. Failure to improve the patient's condition despite utilizing **AGGRESSIVE BLS TECHNIQUES** (BVM with BLS airway adjuncts & 100% O<sub>2</sub>)

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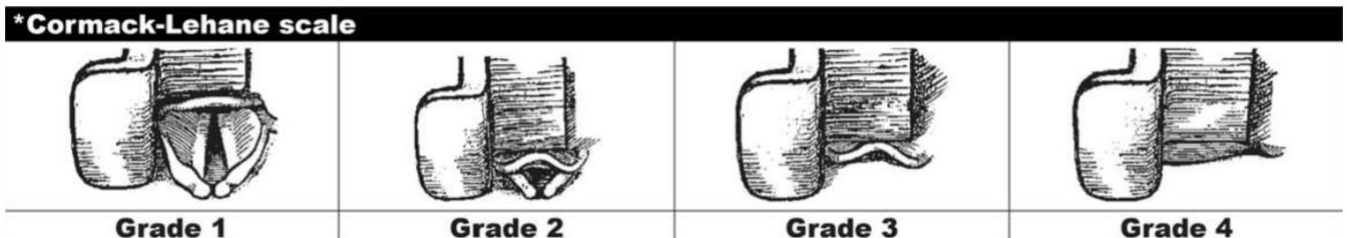
**4. Endotracheal Intubation (ETT) of a pediatric patient (equal to or less than 11 years in age or fits onto length based assessment tape). Only a FP-C / CCEMTP or a MICFN that works for a CAMTS (Commission on Accreditation of Medical Transport Systems) accredited program or equivalent, may perform ETT of a pediatric patient.**

**A. Indications**

1. Respiratory arrest or depression.
2. ROSC without rapidly improving GCS.
3. Severe respiratory distress.
4. Patient cannot control their own airway.

**B. Considerations**

1. If narcotic use is suspected, maximize naloxone administration prior to advanced airway.
2. If the patient's airway is patent and being well managed with BLS airway, the use of advanced airway may be deferred.
3. If oral ET tube has not been successfully placed after two attempts, a Supraglottic Airway Device (SAD) should be placed.
4. If the patient's airway is a grade 3 or grade 4 on the Cormack-Lehane scale\*, placement of a Supraglottic Airway is preferred.



**C. Equipment:**

1. Personal protective equipment.
2. BVM.
3. Appropriately sized ET tube or Supraglottic Airway.
4. Laryngoscope with appropriately sized blade.
5. Tape or commercially manufactured tube holder.
6. 10cc syringe.
7. ET introducer (boogie)
8. Suction device.
9. Stethoscope.
10. Pulse oximetry device.
11. End tidal capnography device.
12. Towel or pad (optional).

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**D. Procedures: Oral Tracheal Intubation**

1. Don PPE.
2. Assure patent airway, oxygenation & ventilation.
3. Assure ECG & pulse oximetry is applied.
4. Check cuff integrity by fully inflating & deflating.
5. Place ET introducer into ET tube- OPTIONAL
6. Select laryngoscope blade & check laryngoscope light.
7. Place towel/pad under patient's occiput, and place patient in the "sniffing position" (if spinal injury is not suspected).
8. Pre-oxygenate with 100% oxygen for 2 – 3 minutes, target  $\geq 95\%$  O<sub>2</sub> saturation
9. Apply **External Laryngeal Manipulation (ELM)** or **Backwards Upward Rightward Pressure (BURP)**.
10. Insert laryngoscope blade into the right side of the patient's mouth, advance blade to the base of the tongue, sweep tongue to the left.
  - a. Place straight blade beneath the epiglottis.
  - b. Place curved blade into the vallecula above the epiglottis.
11. Lift laryngoscope along the long axis of the laryngoscope handle, avoid a rocking motion & contact with the patient's teeth.
12. Visualize the vocal cords & glottis opening.
13. Insert ET tube & remove introducer (if used).
14. Inflate cuff, if equipped
15. Confirm ET tube placement by auscultation, ET tube position makers i.e. 21-23 cm at the teeth.
16. Secure ET tube with tape or commercially manufactured tube holder.
17. Connect ETCO<sub>2</sub> device, wave form the preferred ETCO<sub>2</sub> device. If waveform is unavailable then colorimetric may be used.