*BVM is the preferred airway for pediatric patients. Pediatric intubation is an ALS procedure to be used on an apneic patient. BLS airway management skills (positioning, BVM) must be done prior to any attempt at intubation. Recent literature supports more selective utilization of pediatric intubation, specifically in cases in which an adequate airway cannot be maintained with BLS airway support.

Intubation for the pediatric patient (age 14 and under) should be performed only if BVM ventilation is unsuccessful or impossible. It is imperative to document adequacy of ventilation (BVM and ETT) prior to and after intubation attempts. The goal is to ventilate the patient, not just to intubate.

1. For any given patient, no more than a total of two (2) intubation attempts can be performed prior to transport. Expedite transport whenever possible, with intubation and IV attempts en route.

2. INDICATIONS FOR INTUBATION:
   a. Cardiac Arrest
   b. Near Drowning that results in apnea and/or cardiac arrest
   c. Non-responsive, apneic patients who cannot be ventilated adequately with BVM
   d. Uncontrolled airway that cannot be ventilated with a BVM
   e. Bypass airway obstruction
   f. Tracheal suctioning due to heavy meconium aspiration

3. CONTRAINDICATIONS FOR INTUBATION:
   a. Apneic patients who can be adequately ventilated with BVM
   b. Responsive patients with spontaneous respirations and/or intact gag reflex
   c. Epiglottitis

4. EQUIPMENT:
   a. Battery powered laryngoscope handle, extra batteries and bulbs
   b. Laryngoscope blades: curved sizes 1-3 and straight sizes 0-3
   c. Pediatric McGill forceps
   d. Endotracheal tubes: un-cuffed 2.0 to 4.5; cuffed 5.0 to 7.0
   e. Lubricating jelly
   f. Disposable pediatric stylets
   g. SuctionPulse oximetry
   h. Cardiorespiratory monitor
   i. Capnography device
   j. Pediatric End Tidal CO2 detector
   k. Atropine
5. **PROCEDURE:**
   a. Place child in supine position  
   b. Perform BVM with 100% O2 for 1-3 minutes to fully saturate hemoglobin  
   c. Maintain BVM if adequate and prepare for transport  
   d. If BVM is inadequate (O2 desaturation), prepare to intubate  
   e. Monitor heart rate throughout procedure:  
      i. * If HR < 60 beats/min for a child or < 80 beats/min for an infant, stop the procedure and ventilate with 100% O2.  
   f. Cervical spine precautions if indicated  
   g. Pts < 12 months: consider towel under shoulders to maintain a neutral spine position  
   h. Avoid over flexion of the neck to avoid airway occlusion  
   i. Select proper ETT size using the Brose low tape or the size of the child’s 5th digit  
   j. Suction the airway as needed  
   k. Select proper sized blade. It is recommended to use a straight blade with infants.  
   l. Using a stylet, insert ETT 2-3 cm past the cords under direct visualization  
   m. Remove stylet and bag ventilate. If the chest fails to rise and air is auscultated over the epigastric area, esophageal intubation has most likely occurred. Immediately pull the tube and hyperventilate with BVM.  
   n. Allow no longer than 30 seconds per attempt, and hyperventilate between attempts for at least 1 minute.  
   o. On scene intubation attempts should be limited to no more than a total of 2 attempts between one or two providers.  

6. **CHECK FOR PROPER TUBE PLACEMENT:**
   a. Auscultate to confirm ABSENCE of sounds over stomach first then bilateral breath sounds  
   b. Use pulse oximetry to confirm O2 saturation  
   c. Apply End Tidal CO2 detector (please remember that ETCO2 may not register in cardiac arrest scenarios, despite proper placement).  
   d. If there is any doubt as to proper placement of the ETT, visualize the pharynx with laryngoscope and confirm position. If still in doubt remove the ETT and either retry or use BVM.  
   e. Secure tube and consider head immobilization to prevent tube dislodgement
7. **PRECAUTIONS AND COMMENTS:**
   a. An intubation attempt is defined as the introduction of an endotracheal tube past the patient’s teeth.
   b. Defibrillation should precede intubation.
   c. Atropine (0.02 mg/kg (0.2 cc/kg), minimum 0.1 mg (1 cc) IV/IO pretreatment pediatrics <1 year old, or in setting of pediatric bradycardia. Maximum dosing in pediatrics is 0.5 mg IV/IO. Atropine use in pediatric intubations is highly recommended to mitigate against bradycardia and hypotension induced from airway manipulation and laryngoscopy.

8. **Differences in the Pediatric Airway:**
   a. It’s smaller!! The tongue is relatively large.
   b. Larynx is higher in the child’s neck which causes more acute angle between the pharynx and larynx
   c. Airway is much shorter– Must take care not to intubate the bronchi
   d. Epiglottis is higher and soft
   e. If the child is small, prominent occiput brings mouth into an anterior position
   f. Consider use of a straight blade