SUBJECT: Pediatric Airway Protocol **PAGE:** 1 of 4
UPDATED: new **EFFECTIVE:** 12/15/2022

RECOMMENDATION(S): Joe Margolick, MD **APPROVAL:** 12/15/2022
CONCURRENCE(S): Trauma Faculty

PREPARATION & PLAN:

- Assess airway/Anticipate difficult intubation
    - Difficult pediatric airways include
        - Congenital syndromes: micrognathia, macroglossia, midface hypoplasia
        - Difficult BVM in edentureless patients
        - Trauma: Bleeding, neck hematoma, airway trauma, C-spine injury
        - Airway debris: Teeth, vomitus
        - Head injury with loss of pharyngeal tone
        - Facial and/or neck burns, inhaled smoke or chemicals
- Assemble Intubation team
    - As pediatric airway compromise is uncommon at UAMS the intubation should be done by the **most experienced provider available**.
    - Strongly consider having anesthesia present for the intubation if time permits.
- Assemble Equipment
    - Use Breslow tape for appropriate dosing of medication and selection of airway equipment
    - Monitors: Ensure BP (2 min cycle, appropriate cuff size), SpO2, ET C02, functioning IV and EKG monitors paled and working
- Optimize Hypoxia
    - Elevate HOB to 45 degrees
    - Pre-oxygenate with positive pressure
        - Options include BVM with PEEP Valve, CPAP, CIPAP, High Flow Nasal Cannula
    - Maintain nasal cannula at 2L/kg/min (max 15L/Min)
    - Abort Intubation attempt and return to BVM if SpO2 drop < 93% or by 10% from baseline SpO2
    - Maintain 100% FiO2 at all times
- Optimize Hypotension
    - Fluid resuscitation 10-20 ml/kg of crystalloid, 10 ml/kg of blood products
    - Consider 1 mcg/kg of epinephrine for peri-intubation hypotension. May repeat as required
    - Careful weight based dosing of induction agents
- Optimize Position of head and neck
    - Maintain C spine if not cleared
    - Jaw thrust is possible while C spine precautions maintained. Caution with chin lift.
- Manage gastric distention with OG/NG tube

PRE-INDUCTION CHECKLIST:

- Identify team members
    - Medical team leader
    - Proceduralist
    - Nursing team leader
    - Airway assistant
    - Scribe
- Ensure comprehensive monitoring is applied and working
    - BP, SpO2, EtCO2, EKG
- Check optimized patient position
    - Bed height
    - Jaw Thrust
    - Inline mobilization?
- Is Pre-Oxygenation optimal?
    - BVM with PEEP Valve functional
    - HFNC
    - NIPPV
- Is Hemodynamic Status Optimal?
    - Volume resuscitated, pressors, inotropes
- Is IV/IO functional?
- Check Airway Equipment/Appropriate size for patient age
    - Suction
    - BVM with PEEP valve
    - Laryngoscope
    - ETT
    - Bougie
    - LMA
    - Nasopharyngeal airway
    - Oral airway
    - Tube securing devide
    - Capnography indicator
- Confirm intubation drugs and doses
- Team leader to verbalize airway plan and backup plans

UNANTICIPATED SCENARIOS:

Difficult mask ventilation

- Optimize position
  - Shoulder roll (< 2 years)
  - Neutral head position (> 2 years)
  - Adjust chin lift/head thrust
  - Adjust cricoid pressure
  - Two person bag mask technique
- Insert Oropharyngeal or nasopharyngeal airway
- Deepen anesthesia
- Insert supraglottic device (eg., LMA)

Difficult Tracheal Intubation

A. PLAN A Endotracheal Intubation

- If first attempt unsuccessful
  - Check: Neck flexion/head extension
  - Laryngoscopy technique
    - Consider Glidescope, Miller blade, MAC blade
  - Ensure ETT is appropriate size
  - Modify laryngeal manipulation if applicable
- Ongoing poor view
  - Bougie
  - Straight Blade laryngoscope (Miller) and/or smaller ETT
- Do not attempt > 4 tracheal intubations
- Once intubation is successful, confirm with capnography, CXR, bilateral auscultation and visual passage through vocal cords if possible

B. **PLAN B Supraglottic Airway Device (SAD)**

- If SAD successful, oxygenate and ventilate, call for help, consider fiberoptic endotracheal intubation and/or leaving SAD in place.
- IF SAD unsuccessful
  - Convert to face mask
  - Optimize head position
  - Oxygenate and ventilate using two person bag mask technique, CPAP and Oropharyngeal airway
  - Consider reversing non-depolarizing paralytic agent.
- Do not attempt > 3 LMA/SAD insertions

C. PLAN C Surgical or percutaneous airway rescue

- Attempt to wake child up if maintaining SpO2 > 80%
- If rocuronium or vecuronium is used, consider suggamadex (16mg/kg) for full reversal
- Airway rescue techniques
  - Percutaneous placement of 14 guage catheter through cricothyroid membrane OR
  - Surgical cricothyroidotomy