Pediatric Rapid Sequence Intubation Guideline

Concern for respiratory failure and/or inability to protect airway[a] (see exclusion criteria)[b]

↓

Obtain IV access x 2, apply cardiac monitors, continuous pulse ox, ETCO2 capnography
Consider blood work including VBG and POC glucose

↓

Optimize hemodynamics prior to intubation:
Give 20 ml/kg NS or LR bolus[c]
Pre-oxygenate with 100% O2 via NRB or BVM for ≥2-3 minutes[1]

↓

Assemble and verbalize team prior to intubation:
Primary and back-up laryngoscopist (positioned to see CMAC screen)
RN administering meds
RT (call 771-7000)
ED pharmacist if available (call 771-7819)
If concern for difficult airway,[d] consult anesthesia (call 771-8233)

↓

Confirm presence of intubation checklist prior to intubation:
Yankauer attached to continuous wall suction
CMAC turned on and in optimal position with appropriately sized laryngoscope[e]
Appropriately sized ETT[e] + one size smaller with stylet inserted
In-line ETCO2 capnography
Appropriately sized back-up LMA[e]
BVM with O2 turned on

↓

Optimize patient positioning prior to intubation:
Align ear to sternal notch[f]
Extend neck to obtain sniffing position[f]
Maintain in-line C-spine stabilization for trauma patients[g]

↓

Proceed to RSI (page 2)

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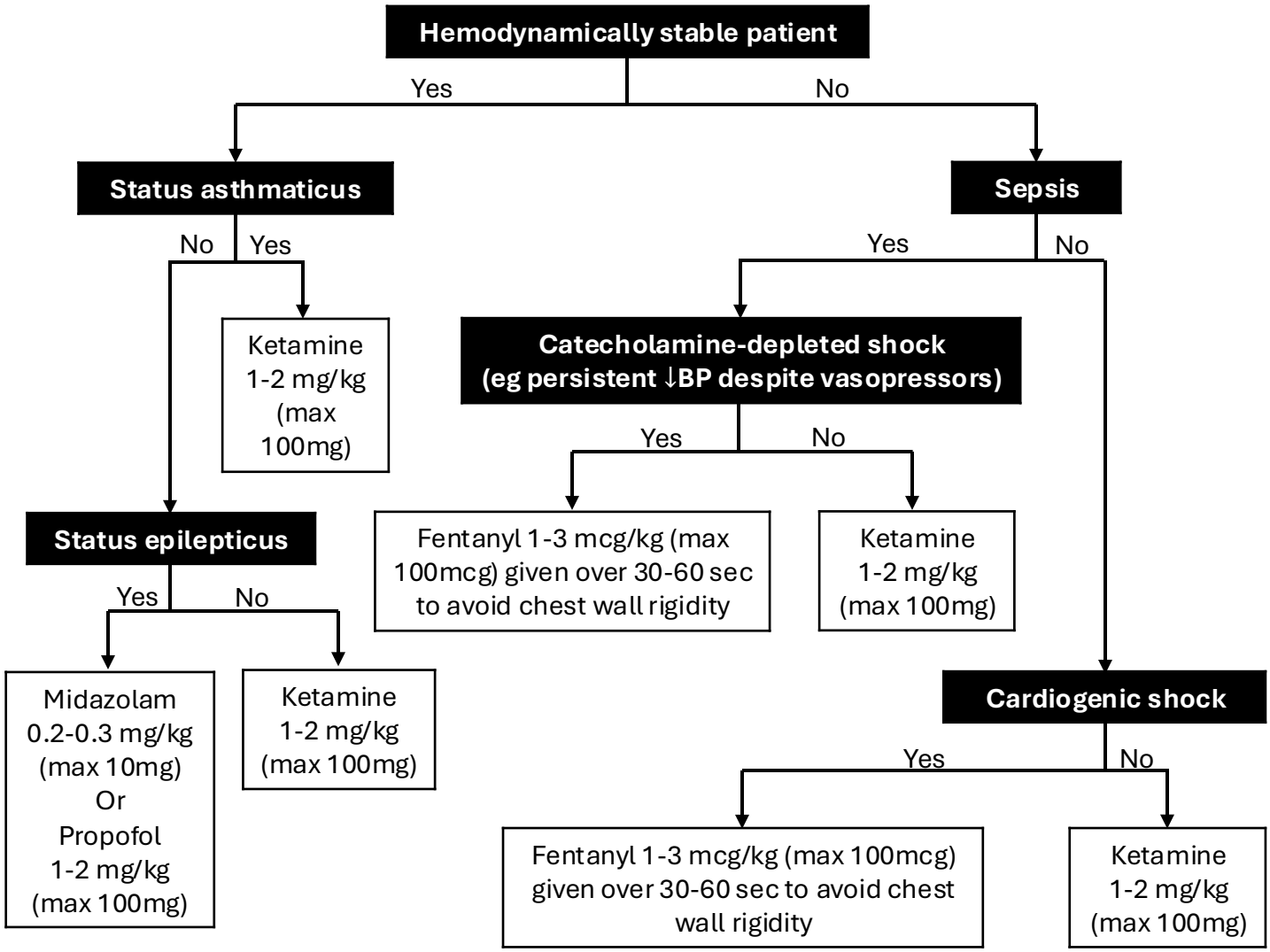
Guidance for Choosing RSI Sedation Medications[2,3]



Guidance for Choosing RSI Paralytics

Drug	Dose	Route	Onset	Duration	Comments
Succinylcholine	IV: 2mg/kg infants 1 mg/kg children IM: 4 mg/kg (max 150 mg)	IV, IM	IV: 30-60 sec IM: 60 sec	IV: 4-10 min IM: 10-30 min	NOT recommended if: skeletal muscle disease (eg muscular dystrophy), neuromuscular disease (eg cerebral palsy) or unknown past medical history, extensive crush, burn or other cause for hyperkalemia, personal or family history of malignant hyperthermia
Rocuronium	1 mg/kg	IV	60 sec	25-40 min	Sugammadex can be given if paralytic reversal is needed (see footnote for dosing)[i]

Proceed to Intubation & Post-Intubation Care (page 3)

Intubation and Post-Intubation Care[5]

Intubation:
Perform time-out with verbalization of team members and roles
Confirm presence of intubation checklist equipment
Confirm optimization of patient hemodynamics and positioning
Pre-treat with atropine 0.02 mg/kg (min 0.1mg, max 0.5mg) for infants and/or pre-intubation ↓HR[4]
Give sedative followed by paralytic in rapid succession
Limit laryngoscopy to < 30 seconds/attempt with maintenance of O2 sats ≥92%

Successful endotracheal intubation

Yes

Confirm ETT placement:
Visualization of ETT passing through vocal cords
ETCO2 color change with waveform present within 20 seconds
Bilateral breath sounds auscultated
Confirm appropriate ETT depth (3x ETT size)

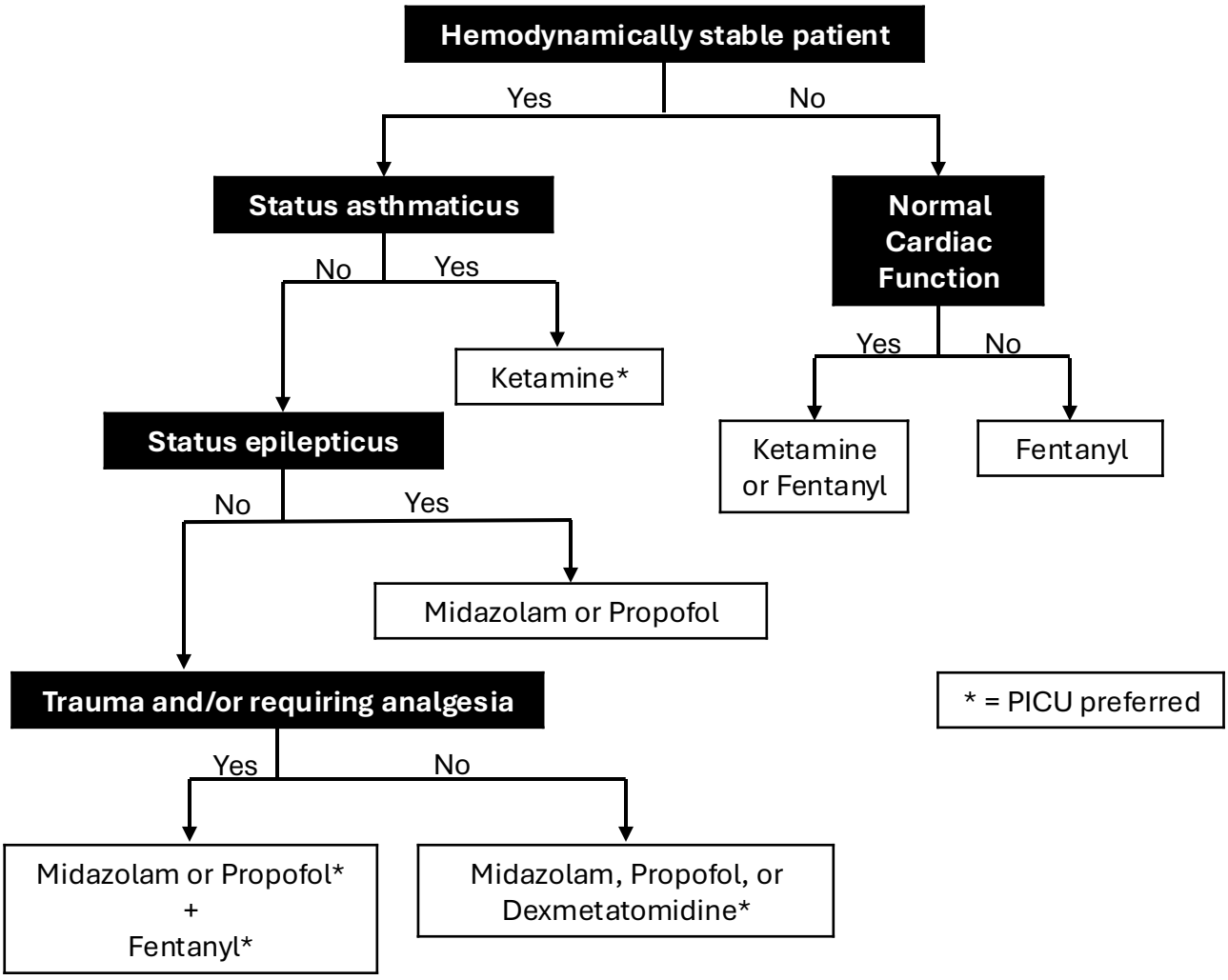
Post Intubation Care:
Secure ETT with benzoin and tape
Portable CXR to confirm ETT placement
NG/OG tube placement
Placement on vent by RT

Proceed to Post-Intubation Sedation/Analgesia (page 4)

No

Re-optimize patient and repeat intubation attempt
Team leader verbalization of change in approach
Re-position patient as needed
Re-oxygenate via BVM
Re-dose sedative/paralytic if patient movement or >10 min since last dose given
Give atropine 0.02 mg/kg (max 0.5mg) if re-dosing succinylcholine[2]

Guidance for Choosing Post-Intubation Sedation/Analgesia Medications



Sedative/Analgesic Dosing

Drug	Starting Dose	Titrate q30 min	Max Dosing	Comments
Dexmedetomidine (Precedex)	Load 0.25-1 mcg/kg over 10 min (0.1-1 mcg/kg/hr)	0.2 mcg/kg/hr	1.5 mcg/kg/hr	↓HR, ↓BP, no analgesia
Fentanyl	<40kg: 0.5-3 mcg/kg ≥40kg: 20-200 mcg/hr	0.5 mcg/kg/hr	<40kg: 5 mcg/kg/hr ≥40kg: 200 mcg/hr	Chest wall rigidity if pushed quickly
Ketamine	1-2 mg/kg/hr (0.3-3 mg/kg/hr)	0.5 mg/kg/hr	4 mg/kg/hr	↑HR, ↑BP
Midazolam (Versed)	<40kg: 0.1 mg/kg/hr ≥40kg: 0.5-4mg	0.05 mg/kg/hr	<40kg: 0.3mg/kg/hr ≥40kg: 6mg/hr	↓HR, ↓BP, no analgesia
Propofol	Load 1-2 mg/kg, max 50mg (20-100 mg/kg/min)	5-10 mg/kg/min	250 mg/kg/min	↓BP, Propofol Infusion Syndrome, no analgesia, CI: egg/soy allergy, ketogenic diet

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Footnotes:

a. Respiratory failure may be hypoxemic (PaO2 < 60 mmhg) or hypercapnic (PaCO2 > 50 mmhg)[5]

b. Exclusion criteria: adult patients >18 years

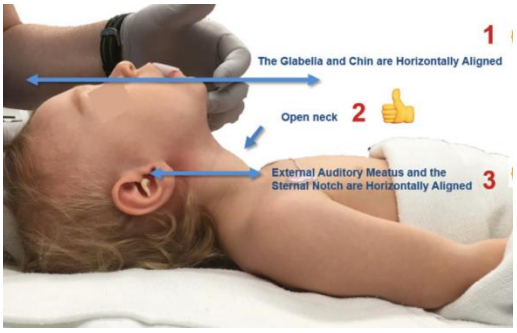
c. Consider 5-10ml/kg IVF boluses if concern for cardiac dysfunction including myocarditis, congenital heart disease or other causes of congestive heart failure or fluid overload.[2]

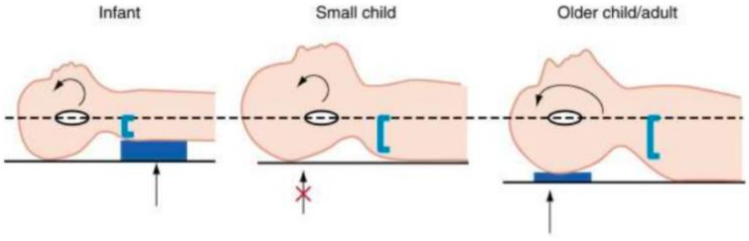
d. Difficult airway indicators: history of difficult airway, small chin or receded jaw, inability to fully open mouth, short neck or poor neck mobility, facial or upper airway trauma, signs of upper airway obstruction (i.e. hoarseness, stridor, drooling, tripoding position), facial anomalies and/or syndromes such as Pierre Robin, Treacher Collins, Coldenhar[2]

e. ETT, laryngoscope, blade and LMA sizes based on age:

Age	Uncuffed ETT	Cuffed ETT	Miller	Mac	LMA
Premature <1kg, <28 wk EGA	2.5	-	0	-	1
Premature 1-2kg, 28-34 wk EGA	3.0	-	0	-	1
Premature 2-3kg, 34-36 wk EGA	3.5	-	0	-	1
Term newborn-3 months		3.0	0-1	-	1
4-12 months		3.5	1	-	1-1.5
1-2 years		3.5-4.0	1-2	1-2	1.5-2
2-4 years		4.0-4.5	2	2	2
4-6 years		4.5-5.0	2	2	2-2.5
6-8 years		5.0-5.5	2	2	2.5
8-10 years		5.5-6.0	-	2-3	2.5-3
10-12 years		6.0-6.5	-	3	3
Adolescent		7.0-7.5	-	3-4	3-4

f. To align the oral, pharyngeal and tracheal axes, horizontally align the tragus of the ear to the sternal notch while maintaining "sniffing position" (i.e. horizontally aligning chin to glabella/space between eyebrows):[2]





May require shoulder roll for infants
or pad under head for older children/adolescents

Footnotes (continued):

g. In-line C spine stabilization:[2]

h. Relative contraindications to use of succinylcholine include: increased IOP, increased ICP (controversial), known pseudocholinesterase deficiency (eg, organophosphate poisoning, congenital enzyme deficiency)[2]

i. Sugammadex dosing:
   - Emergent paralytic reversal needed within 3 min of Roc administration: 4mg/kg
   - TOF 0-1: 4mg/kg
   - TOF 1-3: 2mg/kg
   - TOF 4 and high risk: 2 mg/kg

References:

1. Patel et al, "Age and the onset of desaturation in apneic children," Can J Anaesth, 1994.
2. Agrawal et al, "Rapid sequence intubation (RSI) in children for emergency medicine: Approach," UpToDate, 2025.
3. Indian Academy of Pediatrics, "National Treatment Guidelines," 2025.
4. Fastle et al, "Pediatric rapid sequence intubation: incidence of reflex bradycardia and effects of pretreatment with atropine," Pediatric Emergency Care, 2004.
5. Nationwide Children's Hospital, "Rapid Sequence Intubation & Post Intubation, Sedation and Analgesia: Emergency Department," 2024.