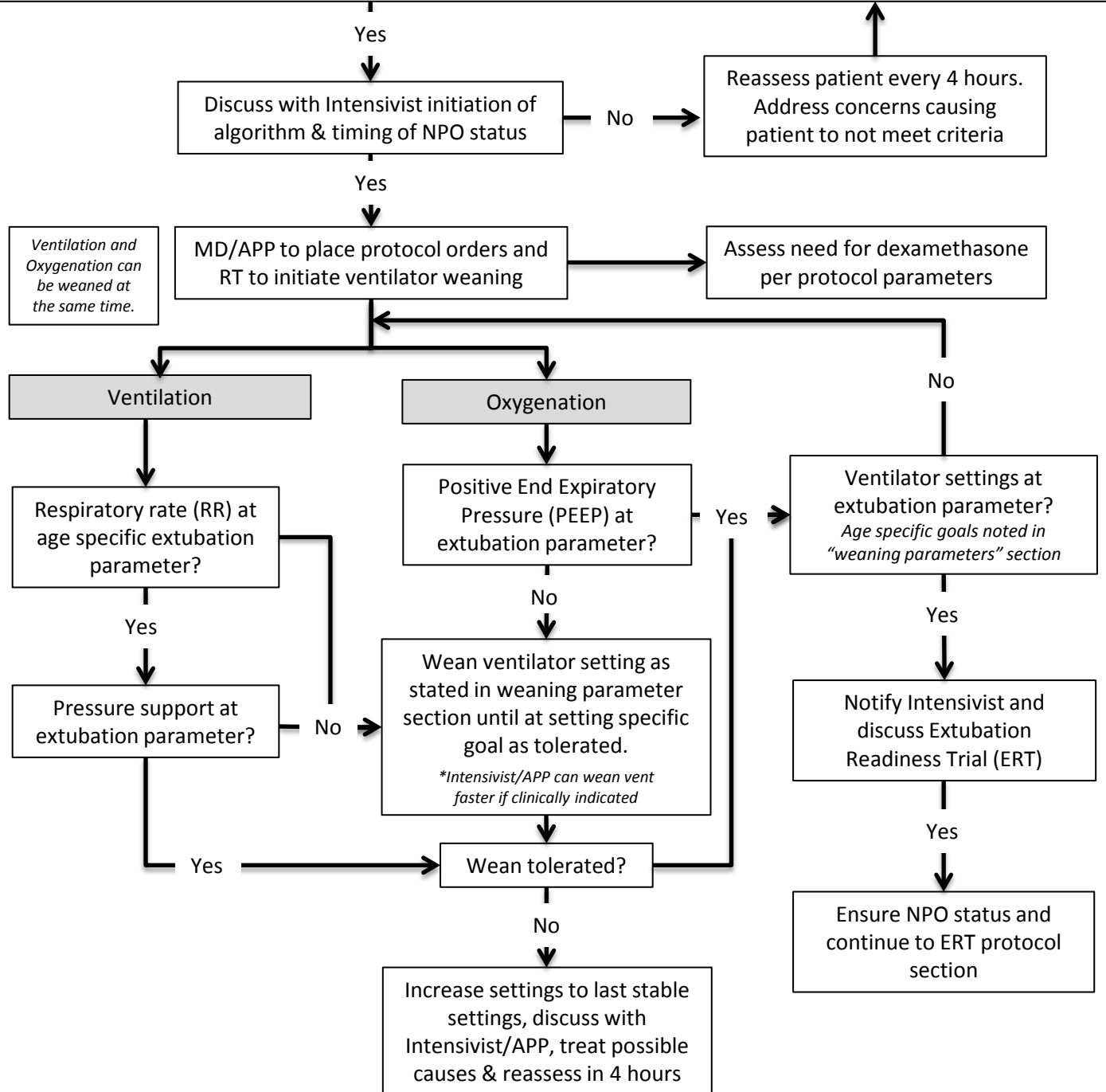


PICU INVASIVE VENTILATOR WEANING PROTOCOL

Criteria for Initiation Ventilator Weaning Algorithm:

- Vital signs within ordered parameters and acceptable work of breathing
- Tolerating SBS goal of (-)1 to 0
- Off Neuromuscular blockade for >6 hours
- Spontaneously breathing: triggering breaths on the ventilator or above set rate
- Ventilator settings: maintained for at least 6 hours in SIMV mode
 - Tidal volume 6-8ml/kg, Mean airway pressure < 18, peak inspiratory pressure (PIP) < 30, FIO2 ≤ 40%, Oxygenation Index (OI) ≤ 6 or Oxygenation Saturation Index (OSI) ≤ 5
- Blood gases: maintained within acceptable range & discussed with Intensivist
- End tidal CO2 monitor (EtCO2) or Transcutaneous monitor (TCM) within set goals

Significant Event: If at any point during the protocol, the patient has a significant change in status (eg, code, ECMO, OR, sepsis): discontinue the protocol. Discuss with provider once criteria subsequently met.



PICU INVASIVE VENTILATOR WEANING PARAMETERS

Setting	Weaning Parameter	Frequency	Extubation Parameters	RT Clinical Assessment
Respiratory rate (RR)	2 breaths per minute (bpm)	every 2 hours	<5 yo = 10 bpm ≥5yo = 5 bpm	Monitor vital signs, work of breathing, tidal volume & RR Maintain ordered CO ₂ range by blood gas, ETCO ₂ or TCM
Pressure Support (PS)	2 cmH ₂ O	every 2 hours	<5yo = 8cmH ₂ O ≥5yo = 5 cmH ₂ O	Maintain tidal volume (TV) ≥ 4 ml/kg on spontaneous breaths Monitor vital signs & work of breathing Maintain ordered CO ₂ range by blood gas, ETCO ₂ or TCM
PEEP (positive end expiratory pressure)	1 cmH ₂ O	every 8 hours	5 cmH ₂ O	Maintain FIO ₂ ≤ 40% Maintain O ₂ sats >90%

DEXAMETHASONE CRITERIA

Discuss initiation of dexamethasone for extubation if following criteria are present:

- Intubated patient <1 year of age
- No leak present at >20 cmH₂O within 24 hours prior to planned extubation

Initiation of dexamethasone:

- 12 hours prior to planned extubation
 - Goal: at least 2 doses given to patient prior to extubation
- Dose: 0.5mg/kg IV q6h x 4 doses (max dose: 4mg/dose)
- Adjunct medications:
 - Racemic Epi to be at bedside for extubation
 - Dose: 0.25-0.5ml of 2.25% racemic epinephrine diluted in 3ml

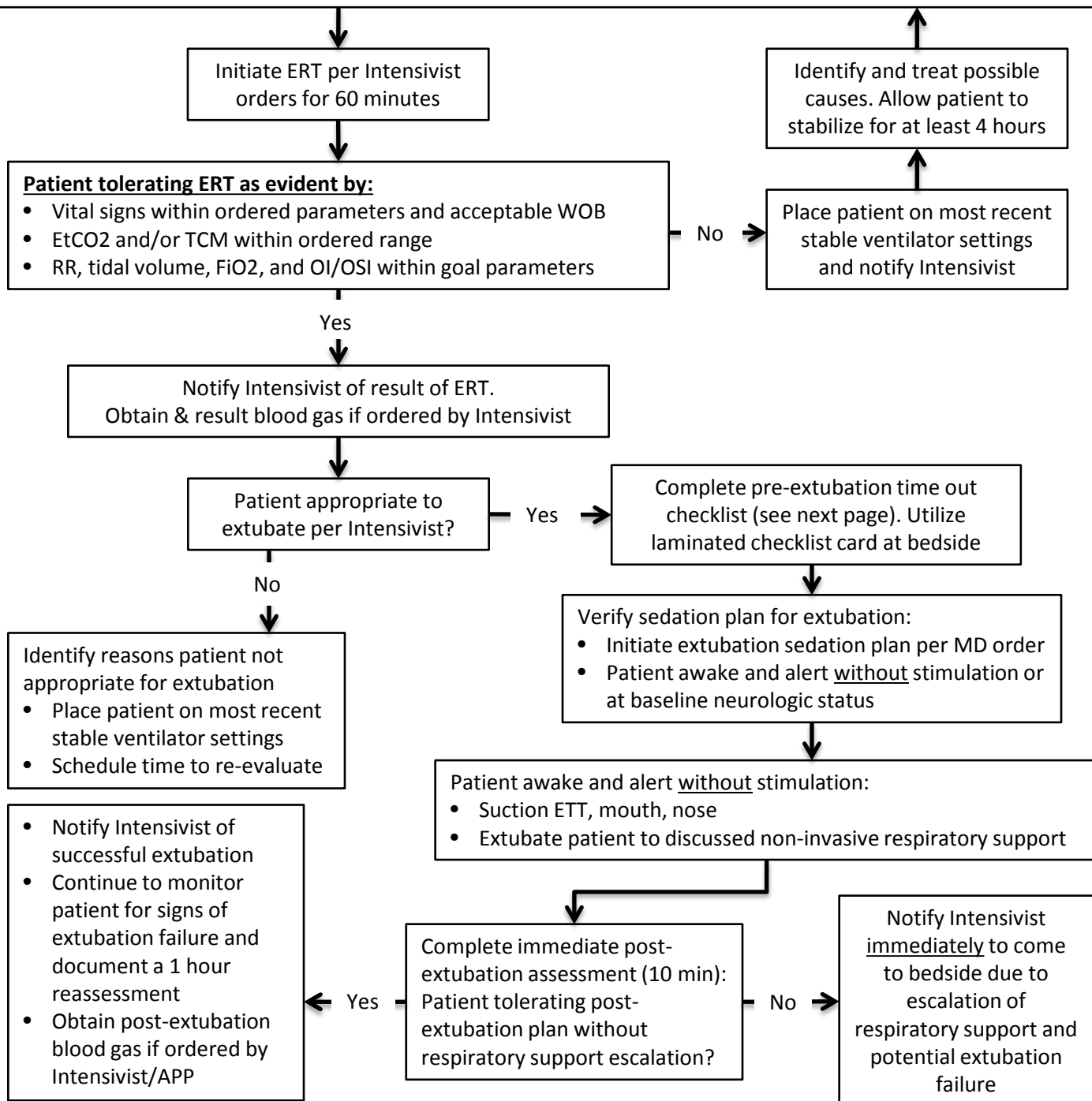
EXTUBATION READINESS TRIAL (ERT)

Criteria for Initiation for Extubation Readiness Trial:

- Vital signs within ordered parameters
- Patient at SBS goal of (-)1 or 0 with appropriate respiratory rate
- Patient NPO status and timing verified
- Ventilator settings at extubation parameters for age and tolerated for ≥ 2 hours
- Acceptable work of breathing
- Blood gases, End tidal CO₂ monitor (EtCO₂) and/or Transcutaneous monitor (TCM) within set goals & discussed with Intensivist
- Cough and gag present

ERT Vent Settings:

- <5yo: PEEP 5, PS 8
- ≥5yo: PEEP 5, PS 5



PRE-EXTUBATION CHECKLIST

Intensivist to define the following:

- Intensivist present at bedside for extubation?
 - If no, does Intensivist want APP or resident present?
- Verify peri-extubation sedation plan
- Determine post-extubation respiratory support plan



Nursing:

- Emergency equipment ready at bedside prior to extubation attempt:
 - Emergency med sheet present
 - Med-line identified, function verified and readily available
 - Suction set-up, functioning and ready
 - Self-inflating bag attached to oxygen with proper mask size attached

Respiratory Therapy:

- Airway cart outside of room
- Re-intubation supplies verified available in cart:
 - ETT/LMA
 - Stylet
 - Waveform ET_{CO}₂
 - Tube tape/duoderm available
 - Laryngoscope/C-Mac with appropriate blade available
 - Oral airway available
 - Flow-inflating (anesthesia) bag in cart

PROTOCOL PATIENT EXEMPTIONS

Following patient populations are exempt from this protocol:

- Congenital heart disease: *Single ventricle or cyanotic mixing lesion with baseline saturation < 90%*
- Current ECMO patient
- Trisomy 13 or 18 patient

Following patient populations ARE exempt from the *extubation* only section of this protocol:

- Critical or difficult airway

Following patient populations MAY be exempt from the *extubation* only section of this protocol:

- Neuromuscular weakness (eg. SMA1, Myasthenia gravis)
- Post-op oropharyngeal surgical patients (eg. LeFort, mandibular distraction)
- Post-op ENT airway surgical patients (eg. laryngotracheal reconstruction (LTR), tracheal slide)
- Patient being extubated to RAM or Bipap, not on non-invasive positive pressure support at baseline
- Patients intubated for non-respiratory causes (eg. ingestions, post-epileptic respiratory depression)