## Endotracheal Tube

| Age | Weight (gm) | ETT Size I.D. (mm) | Laryngoscope Blade Size | Suction Catheter (French) | Approximate Insertion Depth (cm) |
|---|---|---|---|---|---|
| Premature/ Neonate | 500-1000 | 2.5 | 0 | 6 | 6.5-7 cm |
| | 1000-2000 | 3 | 0-1 | 6 | 7.5 cm |
| | 2000-3000 | 3.5 | 0-1 | 6 | 8 cm |
| | >3000 | 3.5 | 1 | 8 | 9 cm |
| 6 months | | 3.5-4 | 1 | 8 | 10 cm |
| 1 year | | 4-4.5 | 1-1½ | 8 | 11 cm |
| 2 years | | 4.5 | 2 | 8 | 12 cm |
| 4 years | | 5 | 2 | 10 | 14 cm |
| 6 years | | 5.5 | 2 | 10 | 15 cm |
| 8 years | Use | 6 | 2 | 10 | 16 cm |
| 10 years | cuffed | 6.5 | 3 | 12 | 17 cm |
| 12 years | ETT | 7 | 3 | 12-14 | 18 cm |
| Adolescent | | 7-8 | 3 | 12-14 | 20 cm |

Formula for Uncuffed ETT size (mm ID):

**(age in years/4) + 4**

Formula for Cuffed ETT size (mm ID):

**(age in years/4) + 3**

Cuff Pressure < 20 cm $H_2O$

Formula for ETT depth:

Neonates < 1 month = wt in Kg + 6 cm

Children < 2 years = ETT size x 3

Children ≥ 2 years = $\frac{\text{Age (years)}}{2} + 12$

**Rapid Sequence Intubation**

1. Prepare equipment.
2. Monitor the patient.
3. Preoxygenate with 100% $O_2$
4. Premedicate with atropine if indicated
5. Administer opiate, sedative, barbiturate, benzodiazepine or neuroleptic
6. Administer neuromuscular blockade
7. Cricoid pressure
8. Intubate
9. Verify tube placement
10. Secure the tube

## Glasgow Coma Scale

**Eye Opening** Assesses arousal state

| | | |
|---|---|---|
| **4** | Spontaneously | Opens eyes without stimulation |
| **3** | To voice | Opens eyes when spoken too |
| **2** | To pain | Opens eyes when noxious stimuli are applied |
| **1** | None | Does not open eyes to any stimulus |

**Best Verbal Response** Assesses level of consciousness in terms of ability to produce speech

| | | |
|---|---|---|
| **5** | Oriented | States his or her name, where he or she is, and the date (infant: coos and babbles) |
| **4** | Confused | Cannot state either who or where he or she is or the date (infant: irritable cry) |
| **3** | Inappropriate words | Speaks words without intent on communicating (infant: cries to pain) |
| **2** | Incomprehensible sounds | Grunts, groans, or other sounds (infant: moans to pain) |
| **1** | None | No attempt at vocalizing |

**Best Motor Response** Assesses both arousal and level of consciousness

| | | |
|---|---|---|
| **6** | Obeys | Follows simple commands (infant: spontaneous and purposeful) |
| **5** | Localizes | Attempts to remove noxious stimuli (infant: withdraws to touch) |
| **4** | Withdraws | Arm or leg is pulled away from painful stimuli |
| **3** | Abnormal flexion | Adduction, internal rotation, and rigid flexion of hand and arm with hand clenched and thumb grasped. "Decorticate posturing" |
| **2** | Abnormal extension | Adduction, internal rotation and rigid extension with thumb grasped in clenched fist "Decerebrate posturing" |
| **1** | Flaccid | No motor movement to any kind to any stimuli |

**3-15 Total Score**

## Muscle Relaxant

| Drug | Dose (IV) |
|---|---|
| **Pancuronium** | 0.1 mg/Kg/dose |
| **Rocuronium** | 1 mg/Kg/dose |
| **Succinylcholine** | 1 mg/Kg/dose |
| **Vecuronium** | 0.1 mg/Kg/dose |

## Sedation

| Drug | Dose (IV) |
|---|---|
| **Fentanyl** | 1 mcg/Kg/dose IV q 30 –60 minutes<br>Max dose: 300 mcg<br>Continuous: 1 mcg/Kg/hr |
| **Ketamine** | 1 mg/Kg/dose<br>(consider with asthma) |
| **Lorazepam** | 0.05-0.1 mg/Kg/dose q 4–6 hours<br>Max dose: 4 mg |
| **Midazolam** | 0.1 mg/Kg |
| **Morphine** | 0.1–0.15 mg/Kg IV q 3 – 4 hours<br>Continuous: 10 –30 mcg/Kg/hr (ventilated patients may receive higher starting doses at more frequent intervals) |
| **Propofol** | 25 –100 mcg/Kg/min (short term use only) |
| **Thiopental** | 5 mg/Kg/dose<br>(consider with increased ICP) |

## Fluids and Blood Products

- Fluid Bolus: LR, NS, 5% Albumin 10-20 ml/Kg bolus
- PRBC: 10 ml/Kg will increase HCT 5%
- FFP: 10 ml/Kg for prolonged INR/pt/PTT
- Platelets: 10 ml/Kg for platelet counts <25,000 with active bleeding.

## Emergency Drugs

| Drug | Dose | Comment |
|---|---|---|
| **Adenosine** | 0.1 mg/Kg<br>(Max dose: 6 mg) IV | Give rapidly<br>No effect in 2 min: 0.2-0.3 mg/Kg (Max dose: 12 mg) |
| **Amiodarone** | 5 mg/Kg IV/IO* | Give rapid bolus for<br>V. Fib/pulseless VT<br>Give over 20-60 min for SVT and ventricular dysrhythmias |
| **Atropine** | 0.02 mg/Kg IV<br>(may give ET) | Min dose: 0.1 mg<br>Max dose: 0.5 mg (child);<br>1 mg (adolescent) |
| **Calcium Chloride 10% **** | 20 mg/Kg IV | Give slowly (Max. rate 100 mg/min)<br>Max dose: 1 gm/dose<br>Give in central line if available |
| **Dextrose** | 500 mg/Kg IV | 1-2 ml/Kg D50W Child<br>2-4 ml/Kg D25W Infant<br>5-10 ml/Kg D10W NICU |
| **Epinephrine** | IV/IO*: 0.01-0.03 mg/Kg 1:10,000 concentration<br>ET: 0.1 mg/Kg 1:1,000 concentration<br>NICU:0.01-0.03 mg/Kg 1:10,000 only all routes<br>----------<br>Anaphylaxis<br>IM: 0.01 mg/Kg (0.01 ml/Kg) 1:1,000 | Repeat q 3-5 min for code<br><br><br><br><br>----------<br>Anaphylaxis Max dose: 0.3 mg or 0.3 ml |
| **Flumazenil** | 0.01 mg/Kg<br>(Max does: 0.2 mg) | Give over 15 seconds<br>May repeat at 1 minute intervals up to 4 times<br>Max total dose: 0.05 mg/Kg or 1 mg whichever is lower |
| **Lidocaine 2%** | 1 mg/Kg IV/IO* | May repeat dose in 10-20 min. |
| **Magnesium Sulfate** | 25 mg/Kg/ IV/IO* | Give over 10-20 min; faster in Torsades de Pointes<br>Max dose: 2 gm |
| **Naloxone** | 0.01 mg/Kg IV/ET | Titrate to effect<br>Max: 2 mg |
| **Sodium Bicarbonate** | 1 mEq/Kg IV | Use 1 mEq/ml for ≥ 6 months<br>Use 0.5 mEq/ml for < 6 months |
| **Vasopressin** | 0.5 units/Kg IV/IO* | Max dose: 40 units |

* IO Intraosseous
** Central Line preferred

## Continuous Infusions

| Drug | Dose (IV) |
|---|---|
| **Alprostadil** | 0.01-0.1 mcg/Kg/min<br>0.02-0.05 mcg/Kg/min typical range |
| **Amiodarone** | 10 mg/Kg/day for 4-5 days then 5 mg/Kg/day |
| **Dopamine**** | Renal dose: 0-3 mcg/Kg/min;<br>β dose 5-10 mcg/Kg/min;<br>α dose 10-20 mcg/Kg/min |
| **Dobutamine**** | 1-20 mcg/Kg/min<br>2-10 mcg/Kg/min typical range |
| **Epinephrine**** | 0.01-1 mcg/Kg/min<br>0.01-0.5 mcg/Kg/min typical range |
| **Esmolol** | Load: 500 mcg/Kg<br>Maintenance: 50-1000 mcg/Kg/min |
| **Isoproterenol** | 0.05-2 mcg/Kg/min<br>0.1-0.5 mcg/Kg/min typical range |
| **Lidocaine** | Load: 1 mg/Kg<br>Maintenance: 10-50 mcg/Kg/min |
| **Milrinone** | Load: 50-75 mcg/Kg IV over 10 minutes<br>0.25-1 mcg/Kg/min<br>0.5-1 mcg/Kg/min typical range |
| **Nitroprusside** | 0.3-10 mcg/Kg/min<br>0.5-2 mcg/Kg/min typical range |
| **Nitrogycerin** | 0.5-20 mcg/Kg/min<br>0.5-5 mcg/Kg/min typical range |
| **Norepinephrine**** | 0.02-2 mcg/Kg/min<br>0.01-0.5 mcg/Kg/min typical range |
| **Phentolamine** | 0.5-20 mcg/Kg/min<br>1-5 mcg/Kg/min typical range |
| **Phenylephrine**** | 0.1-10 mcg/Kg/min<br>0.5-5 mcg/Kg/min typical range |
| **Vasopressin** (Cardiovascular Support)** | 0.05-2 milli-units/Kg/min<br>0.1-0.5 milli-units/Kg/min typical range |

** Central line preferred

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# Pediatric Critical Care Reference Guide


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