

# CICU Pocket Reference Card

Normal Vital Signs	HR	RR	Systolic BP	Diastolic BP
<b>Newborn</b>	95-180	40-60	<i>Minimum MAP = GA +5</i>	
<b>Infants</b>	100-180	24-50	60-105	50-65
<b>Toddlers</b>	90-150	22-30	70-110	50-70
<b>Preschoolers</b>	65-140	20-24	80-110	60-70
<b>School-aged child</b>	60-130	18-24	80-120	70-80
<b>Adolescents</b>	60-110	14-22	90-140	75-85
<i>Minimum SBP (&gt;1y) = 70 + (2 x Age)</i>				

## Estimated Weight for Age<sup>HL</sup>

Age (wk)	Wt (gm)	Age	Wt (gm)
<b>24</b>	700	<b>32</b>	1650
<b>26</b>	900	<b>34</b>	2100
<b>28</b>	1100	<b>36</b>	2600
<b>30</b>	1350	<b>38</b>	3000
Age	Wt (kg)	Age	Wt(kg)
Premie	See above	4-6 yr	17-20
<b>Newborn</b>	3-4	6-8 yr	20-25
1-6 mo	4-6	8-10 yr	25-30
6-12 mo	6-10	10-12 yr	30-40
1-2 yr	10-13	12-14 yr	40-50
2-4 yr	13-17	>14 yr	> 50
<i>Estimated Weight: weight(kg) = 10 + 2(age)</i>			

## Blood Products

- ✓ All ages, all products: *leukoreduced*
- ✓ Immunocompromised: *CMV-/irradiated*
- ✓ Infants: *CMV-/irradiated/directed donor*
- **pRBCs**: 10-15 ml/kg will raise Hgb 1-3%
- **platelets**: 10-15 ml/kg will raise Plt ~50K
- **FFP** = all clotting factors (for bleeding with PT/PTT ≥1.5x normal): 10-20 ml/kg raises factors >30%
- **Cryo** = fibrinogen + factors (bleeding with low fibrinogen): 1-2 U/10 kg

## Fluids<sup>HL</sup>

**For Shock:** 10-20ml/kg bolus of Isotonic Solution; repeat PRN

**Maintenance:** 4+2+1 rule (cc/kg/hr) or 100+50+20 rule (cc/kg/day)

**Infants:**  
 <48 hr: D10W @ 3.33 cc/kg/hr (80 CKD)  
 >48 hr or when Na drops to normal: D10¼NS @ 4 cc/kg/hr (100 CKD)

## Hypoglycemia

(0.5 mg/kg, Rule of 50's)

**Adults:** Use **D50** : 1 ml/kg (50x1=50)

**>1 year:** Use **D25** : 2 ml/kg (25x2=50)

**<1 year:** Use **D10** : 5 ml/kg (10x5=50)

**Neonate:** Use **D10** : 2 ml/kg (breaks the rule)

## Nutrition

Formula	cal/cc	Formula	cal/cc
Pedialyte	0.1	MCT	8
18 cal	0.6	Lipid	4.5
20 cal / BM	0.67	Polycose	2
22 cal / (1:50)	0.73	D5	0.18
24 cal / (1:25)	0.80	D10	0.35
26 cal	0.87	D12.5	0.45
28 cal	0.93	D20	0.7
30 cal	1.0	Early TPN	0.38

## Glucose Infusion Rate

$$\text{GIR} = (\% \text{ gluc} \times 10 \times \text{rate}) / (60 \times \text{Wt})$$

## Intubation<sup>NRP</sup>

Age	Blade	ETT	Depth
< 1000gm	Miller 0	<u>2.5</u>	<u>6-7</u> cm
1000-2000gm		<u>3.0</u>	7- <u>8</u> cm
2000-3000gm	Miller 1	3.5	8-9 cm
>3000 gm		<u>4.0</u>	<u>9-10</u> cm
1 yr	Mac 2 (or Miller 2)	4.0	12 cm
2yr		4.5	13.5 cm
4yr		<u>5.0</u>	<u>15</u> cm
6yr		5.5	16.5 cm
8yr	Mac 3 (or Miller 3)	<u>6.0</u>	<u>18</u> cm
10yr		6.5	19.5 cm
12yr		<u>7.0</u>	<u>21</u> cm
14yr		7.0	22.5 cm

**ETT Size (child) = (age/4) + 4**  
**ETT Size (premie) = WGA/10**  
**ETT Insertion Depth = 3 x ETT Size**  
*(Premies: "2,3,4 and 7,8,9" rule)*  
**Suction catheter size = 2 x ETT Size**

## Vents

Example settings (then adjust prn)	
Rate	20-30 for infants, 15-20 others
Vt	10-12 cc/kg
PIP	Titrate to chest wall movement
PEEP	3-5 cm
PS	10
FiO2	100%, wean rapidly to <60%

Setting change	PCO2	PO2
↑ rate	↓	↑
↑ FiO2	None	↑
↑ PEEP	↑	↑
↑ PIP	↓	↑
↑ I/E ratio	None	↑
↑ ΔP	↓	None
↑ MAP	None/↓	↑

## Lines<sup>HL</sup>

	UAC	UVC
Depth	3 x wt + 9	½ x UAC + 1
Placement	T7-T10	Just above diaphragm
Feed	24 hr after removal	OK to feed in place
D/C (days)	5-7 days	10-14 days

Size: <2kg = 3.5 Fr; >2kg = 5 Fr

Adapted from multiple sources by David Crowley, MD. Some clinical problems may not be adequately addressed in this pocket guide. As always, clinicians are urged to document management strategies. This document is valid for 2 years after last revision.

## Preparation: "SOAP MM"

- S: Suction**
- O: Oxygen** – 100% non-rebreather
- A: Airway**
  - Laryngoscopes
    - <1 yr Miller 1
    - 1-10 yr Mac 2
    - >10 yr Mac3
  - ETT tube
    - NICU: gestational age/10
    - Children: (Age/4) + 4
    - >8 yrs: Cuffed
- P: Pressure** (Bag)
- M: Monitors**
- M: Meds**
  - Anticholinergic (<6 yr)
    - Atropine 0.01-0.02mg/kg (min. 0.1 mg, max 1.0)
  - Sedative
    - Etomidate (0.3 mg/kg) – decreases ICP
    - Versed (0.1 mg/kg) and Fentanyl (2 mcg/kg)
  - Paralytic
    - Vecuronium (0.2 mg/kg)
    - Rocuronium (1 mg/kg)
    - Succinylcholine (1-2 mg/kg).
      - Contraindicated: eye injuries, burns, hyperkalemia, CVAs, crush injuries, malignant hyperthermia, hepatic disease, anemia, renal failure, pregnancy, myopathies.

## Criteria (pick one, any one)

- No gag/cough
- GCS <9
- Increased ICP/hyperventilate
- pCO2 >55 (>65 asthma)
- pO2 <60 on >60%
- Obstructed airway, or risk
- Severe distress
- Safety (sedation, transport)

## Rapid Sequence

- Pre-oxygenate for 5 min
- Drugs, in order above
- Cricoid pressure
- Wait for paralysis
- Intubate
- Check position
  - Direct visualization
  - Chest rise
  - Auscultation
  - ETCO2 monitor

## Modified Rapid Sequence (hypoxic or increased ICP)

- Pre-ox, Drugs, Cricoid pressure, **BMV after drugs**, Intubate...

# Common Emergency Medications

	Medication	Typical Pediatric Dose (IV)	Typical Adult Dose
<b>Intubation</b>	Ativan/Lorazepam	0.1 mg/kg	0.5-2 mg
	Atropine	0.02 mg/kg (min. dose 0.1mg) (<6 yrs)	(Not given for intubation)
	Etomidate	0.3 mg/kg	0.3 mg/kg
	Fentanyl	1-2 mcg/kg	25 mcg
	Lidocaine	1 mg/kg	1-1.5 mg/kg
	Midazolam/Versed	0.1 mg/kg (repeat prn, max 3 doses)	1 mg
	Succinylcholine	1-2 mg/kg/dose	150 mg
	Vecuronium	0.1 mg/kg (max 1 mcg/kg/min)	0.1 mg/kg
<b>Status Epilepticus</b>	Ativan/Lorazepam	0.1 mg/kg (repeat prn, max 3 doses)	4 mg
	Fosphenytoin	20 mg/kg	20 mg/kg
	Phenobarbital	10-20 mg/kg (may need to intubate)	20 mg/kg
<b>Analgesia</b>	Acetaminophen	10-15 mg/kg q4-6h	650-1000 mg
	Ibuprofen	5-10mg/kg q6-8h	400 mg
	Fentanyl	1-2 mcg/kg	25-50 mcg
	Morphine	0.1 mg/kg	1-5 mg
<b>Conscious Sedation</b>	Choral Hydrate	25-50 mg/kg PO (max 1-2 grams)	0.5-1 gram
	Etomidate	0.3 mg/kg	0.3 mg/kg
	Ketamine	0.5-1mg/kg (IV) and 2-4mg/kg (IM)	2 mg/kg
	Midazolam/Versed	0.1 mg/kg (repeat prn, max 3 doses)	1 mg
	Propofol	1-2 mg/kg	50-150 mg
<b>Reversal</b>	Flumazenil	0.01 mg/kg (max 5 doses)	0.2 mg
	Narcan/Naloxone	0.1 mg/kg q2-3min prn	0.6 mg standard
<b>Misc</b>	Activated Charcoal	1-2 grams/kg q4h prn	30-100 grams
	Epinephrine (anaphylaxis)	0.01 ml/kg SQ of 1:1000 =0.01 mg/kg	1 mg/dose standard (0.2 mg/kg max)
	Mannitol	0.25-1 grams/kg q4h prn	2 grams/kg
<b>Cardiac</b>	Adenosine (SVT)	0.1 mg/kg; double dose prn (max 12mg)	6mg x1, then 12 mg x2
	Lidocaine	1 mg/kg then 20-50 mcg/kg/min	50 mcg/kg/min
	Prostaglandins	0.05 - 0.1 mcg/kg/min to effect (watch for apnea)	N/A
	Epinephrine drip	Start at 0.1 mcg/kg/min	2-10 mcg/min
	Dopamine drip	2-20 mcg/kg/min	2-20 mcg/kg/min
	Dobutamine drip	2-20 mcg/kg/min	2-20 mcg/kg/min
<b>Shock</b>	Defibrillation	2-4 J/kg (monophasic) 1-2 J/kg (biphasic)	100, 200, 300, 360 (half that if biphasic)
	Cardioversion (sync)	1-2 J/kg (monophasic) 0.5-1 J/kg (biphasic)	200, 300, 360 (half that if biphasic)

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# Non-emergent newborn medications

## Antimicrobials

### Acyclovir

20 mg/kg q8h

### Ampicillin

50 mg/kg; interval depends on age  
(Oxacillin 25mg/kg, same schedule)

GA	Age (d)	Interval (h)
<30	0-28	q12
	≥29	q8
30-36	0-14	q12
	≥15	q8
37-44	0-7	q12
	≥8	q8

### Gentamicin

Dose and interval depends on age

GA	Age	Dose (mg/kg)	Interval
<30	0-7	5	q48
	8-28	4	q36
	≥29	4	q24
30-34	0-7	4.5	q36
	≥8	4	q24
≥35	(all)	4	q24

## FEN/GI

### Aldactone (Spironolactone)

1-3 mg/kg q24h

### Diuril (Chlorothiazide)

10-20 mg/kg q12h

### Iron

2 mg elemental Fe/kg q24h

### NaCl<sup>HL</sup>

3-5 mEq/kg/day ÷ q6h

### KCl

0.5-1 mEq/kg ÷ with feeds

### Ranitidine

IV (Premie): 0.5 mg/kg q12h

IV (Term): 1.5 mg/kg q8h

PO: 2 mg/kg q8h

## Respiratory

### Caffeine

Load: 20-40 mg/kg

(2 mg/kg raises level 1 point)

Maintenance: 5-8 mg/kg q24h

### Survanta

4 cc/kg/dose, in 4 equal aliquots

### Vitamin A

5000 IU IM 3x/wk for 4 wks

## Cardiac

### Alprostadil drip

0.03-0.1 mcg/kg/min

Titrate to effect

Watch for apnea

### Atropine

0.01-0.03 mg/kg (**NO** minimum!)

### Dopamine/Dobutamine drips

2-20 mcg/kg/min

### Epinephrine (1:10,000)

ETT: 0.3 ml/kg (0.03 mg/kg)

IV: 0.1 ml/kg (0.01 mg/kg)

Drip: 0.1 mcg/kg/min

### NaBicarb (0.5 mEq/ml)

4 ml/kg (2 mEq/kg)

## Neuro

### Ativan

0.1 mg/kg

### Methadone

### Morphine

0.1 mg/kg

### Narcan (0.4 mg/ml)

0.25 ml/kg (0.1 mg/kg)

### Phenobarbital

Load: 10-20 mg/kg

Maintenance: 5 mg/kg ÷ bid-qid

All medication doses on this page are according to Neofax 2006 edition unless otherwise stated.

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