



METHODIST AirCare

Operated by REACH
Air Medical Services



Methodist
CHILDREN'S
TRANSPORT



Methodist Children's Hospital and
Women's Services San Antonio, Texas



Neonatal Reference Guide

Assessment

Heart Rate (beats/min.)

Age	Rate
<40 weeks	120 - 180
Term Newborn	90 - 160

Temperature 36.5 - 37.5 C

Respiratory Rate (breaths/min.)

Age	Rate
<40 weeks	30 - 60
Term Newborn	30 - 60

Blood Pressure

Age	mmHg
<40 weeks	MAP (mean arterial pressure) = Gestational Age
Term Newborn	Systolic 55-90, Diastolic 26-55

APGAR Score

Sign	0	1	2
Appearance (color)	Blue, pale	Body Pink, Extremities Blue	Completely Pink
Pulse (heart rate)	Absent	Below 100	Over 100
Grimace (reflex irritability to stimulation)	Absent	Grimaces	Cries
Activity (muscle tone)	Limp	Some flexion of extremities	Active motion
Respiratory Effort	Absent	Slow, irregular	Good, strong cry

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Circulation/Fluids

Volume Expanders: Normal Saline or Blood	10 ml/kg	10 ml/kg	Give over 5 - 10 minutes. Reassess after each bolus.
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Newborn Glucose Management

Hypoglycemia Risk Factors

- SGA
- LGA
- IDM
- Preterm
- Sick or stressed

Target Glucose Level: 50 - 110 mg/dL

Hypoglycemia (*glucose level <50 mg/dL*)

- Initial bolus 2 ml/Kg D10W
- Repeat initial bolus
- Maintenance rate 80 mg/Kg/day D10W
- If still low, increase maintenance D10W rate to 100 ml/Kg/day

Continuous infusion of NS via UAC line is 1 ml/hr.

May add 0.5 - 1 unit/ml of Heparin.

Do not use UAC for medication administration with exception of emergent use.

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for Methodist AirCare, Santa Rosa, CA: REACH 2008.

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Airway

ETT Size & Depth of Insertion Based on Infant's Weight & Gestational Age

Weight (g)	Age (wk)	ETT	Depth
<1000	<28	2.5	6.5 - 7.0
1000 - 2000	28 - 34	3.0	7.0 - 8.0
2000 - 3000	34 - 38	3.5	8.0 - 9.0
>3000	>38	3.5-4.0	9.0

ETT & UAC/UVC Placement on X-ray

ETT: T1 - T3

UAC: High Line T-6 to T-9
Low Line L-3 to L-4

UVC: At the level of the diaphragm – **do not use** if angling toward liver



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Emergency Medications

Resuscitation Drugs

Chemical	dose/kg	ml/kg	Notes
Epinephrine 1:10,000 (0.1 mg/ml)	0.01 mg/kg	0.1 ml/kg	For non-life sustaining rhythm: 0.01 mg/kg 1:10,000 (0.1 ml/kg) IV/UVC q 3 - 5 min. Higher dose for ETT route may be needed (0.3-1.0 ml/kg). For hypotension: 0.1 mcg/kg/min. titrated up to 0.5 mcg/kg/min.
Volume Expanders: Normal Saline or Blood	10 ml/kg	10 ml/kg	Give over 5 - 10 minutes. Reassess after each bolus.
Naloxone 0.4 mg/ml	0.1 mg/kg	0.25 ml/kg	IV or IM. ETT not recommended.
Dextrose 10% (100 mg/ml)	200 mg/kg	2 ml/kg	May require dilution from 25% Dextrose.
Dopamine	5-20 mcg/kg	5-20 mcg/kg	Titrate to maintain blood pressure.
Prostaglandin E1 (PGE1) (500 mcg/ml. Mix in 50 ml D5 or NS.)	0.05-0.1 mcg/kg/ min. to start. (May increase to 0.2-0.4 mcg/kg/ min if no response.*)		<i>Caution: Apnea, bradycardia, fever, flushing, hypotension, and seizures can occur.</i>
Sodium Bicarbonate 4.2% 0.5 mEq/ml	1 - 2 mEq/kg	2 - 4 ml/kg	Give slowly. Minimum 2 minutes.

* Karlsen, K. (2006). STABLE Program.

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Breathing

O₂ via NC

1 lpm for oxygenation

2 lpm for stimulation/stenting

Nasal CPAP

Flow	6 - 8 lpm	6 lpm for <34 wks & 8 lpm for term infants
FI _{O2}	100%	Titrate for SpO ₂ 92 - 95% (85 - 92% in preterm)
CPAP	4 - 8 cmH ₂ O	

Initial Ventilator Settings (Newborn*)

	VLBW <1.5 Kg	LBW 1.5 - 2.5 Kg	Term >2.5 Kg
Rate	30 - 60	30 - 60	20 - 50
Insp. Time	Match GA (>.25 sec)	Match GA	Match GA (<.45 sec)
PIP	14 - 22	18 - 24	20 - 28
PEEP	3 - 4	4 - 5	4 - 5

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Strategies for Mechanical Ventilation

To Increase PaO₂ or SpO₂

1. Increase the FI_{O2}
2. Increase the mean airway pressure:
 - a. Increase the PEEP
 - b. Increase the inspiratory time or change I:E towards 1:2
 - c. In pressure mode with high rates decrease the rate and increase the inspiratory time (*keep I:E ratio ≥1:2*)

To Decrease the PaCO₂ or EtCO₂

1. Increase the minute ventilation:
 - a. Increase rate and/or V_t (*tidal volume*)
 - b. In pressure modes, increase the pressure (*PIP*)
2. Increase the expiratory time with obstructive airway diseases:
 - a. Increase the expiratory time or change the I:E ratio towards 1:4

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Other Medications

Analgesics/Narcotics

Morphine: 0.05 - 0.1 mg/kg IV/UVC/IM
(Caution: Use dilution of 1 mg/ml of Morphine. May cause hypotension)

Fentanyl: 1 mcg/kg IV/UVC/IM
(Caution: Do not push—must be infused over 20-30 minutes. May cause chest wall rigidity.)

Anticonvulsants/Sedatives

Lorazepam: 0.05 - 0.1 mg/kg/dose IV/UVC

Midazolam: 0.05 - 0.1 mg/kg IV/UVC/IM

Phenobarbital: Loading dose: 20 mg/kg
(Give slowly over 2-3 minutes & monitor respirations closely)
Bolus doses: 5 mg/kg q 15 - 30 minutes, if seizures continue
(May give a maximum of two bolus doses)

Antibiotics

Ampicillin: 100 mg/kg
Infuse IV/UVC over 20 - 30 minutes with minimum dilution of 100 mg/2ml

Gentamicin: 4 mg/kg (Initial Dose)
Infuse IV/UVC over 30 - 40 minutes with minimum dilution of 4 mg/1 ml
(Best when infusing with maintenance IV fluid)

rev 12/09

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