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## PRIORITIES FOR CARDIOPULMONARY RESUSCITATION OF THE NEONATE

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### One Leader of Team: Absolute Necessity — Most Experienced Person

#### A. AIRWAY - neck extended straight

1. Clear airway
2. Mouth-to-mouth (if mask and Ambu bag not immediately available)
3. Mask and bag (orogastric tube)
4. Endotracheal tube only after ventilating several times (bag, mouth)

#### B. BREATHING

1. 40-60 inflations/minute
2. Maximum inspired oxygen concentration (100% oxygen)

#### C. CIRCULATION

1. External cardiac massage after several inflations
  2. Compression 2 cm above xiphoid, below nipple line
    - a. Hands encircle chest with thumbs midsternum
  3. 120 beats/minute (neonate)
  4. EKG - Lead II
  5. Blood pressure
- } after first dose of colloid, NaHCO<sub>3</sub>, epinephrine

#### D. DRUGS - to be given in this order (Note: the doses listed are those recommended for neonates by NRP and may differ slightly from the Pediatric Resuscitation Cards)

1. Establish intravenous route
2. Epinephrine — 1:10,000
  - a. Pulse of zero or below 80 and not increasing or responding to CPR (see above)
  - b. 1:10,000 solution is commercially available; may dilute 1 ml of 1:1000 (1 mg/ml) solution with 9 cc normal saline
  - c. 0.1-0.3 ml/kg of 1:10,000 solution (0.5-2 ml)
  - d. Should repeat every 5-10 minutes if continued bradycardia; may give IV, IT
  - e. Also see Fibrillation (#9)
3. Colloid
  - a. 10 ml/kg of 5% albumin, plasmanate, or fresh frozen plasma with poor perfusion or mean pressure <25-30 mmHg — slow infusion
  - b. May repeat every 15-30 minutes
  - c. May not be indicated in patient with congestive heart failure
4. Glucose
  - a. 2 ml/kg of 10% solution, then 3-4 ml/kg/hour of D<sub>10</sub>W

5. NaHCO<sub>3</sub>: 2-4 mEq/kg at 1 mEq/kg/minute of 0.5 mEq/ml (4.2%) solution
  - a. May dilute with sterile H<sub>2</sub>O, D<sub>5</sub>W to 1:1 to 1:4
  - b. May repeat every 5-10 minutes as long as resuscitation needed; monitor ABG
6. Calcium gluconate - 10%: Poor contraction or poor response to epinephrine
  - a. 100-200 mg/kg (1.0-2.0 ml) per kg of 10% calcium gluconate after three doses of NaHCO<sub>3</sub>
  - b. Rate: 1 ml/minute - monitor pulse carefully
  - c. May repeat every 30 minutes

**WARNING: Do NOT mix NaHCO<sub>3</sub> and calcium gluconate**

7. Isoproterenol: Continued cardiac arrest with extreme vasoconstriction (Isuprel)
  - a. Dilute 1 ml of 1:5000 (0.2 mg/ml) with 9 cc normal saline, not NaHCO<sub>3</sub>
  - b. 0.5-1.0 ml of 1:50,000 solution
  - c. May repeat every five minutes
  - d. Continuous infusion: 0.05-0.5 µg/kg/minute
    - 1) 0.2 µg/kg/min = 2.4 mg x (weight in kg) in 100 ml at 0.5 ml/hour
8. Atropine
  - a. 0.02 mg/kg for continued bradycardia due to reflex vagal activity or AV block (0.05 mg minimal dose)
9. DC defibrillation (Note: Infants rarely die in fibrillation)
  - a. Coarse fibrillation
    - 1) Start with 2 watt seconds/kg; you may need to double to 25-50 watt seconds if no response
    - 2) If persists, Lidocaine 1 mg/kg/dose, then 20-50 µg/kg/minute; may try defibrillation again
    - 3) Epinephrine or calcium gluconate may convert fine defibrillation; then DC defibrillation again

E. ENVIRONMENT: Control heat loss.

F. POST-RESUSCITATION: Determine cause of cardiac arrest

1. Monitor vital signs and EKG carefully
  2. Monitor input and output, fluids
  3. Monitor blood gases, electrolytes, calcium, phosphorus, glucose, renal and hepatic functions, coagulation studies, chest x-ray
  4. Watch for cerebral edema, renal failure, hepatic failure, cardiac failure
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