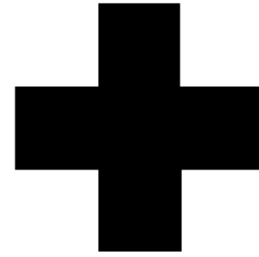


## ***Essentials of Neonatal Transport***

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1. Introduction
  - a. Regionalized perinatal health care as a framework for cooperative efforts to reduce perinatal morbidity and mortality.
  - b. Transport programs necessary for this regionalization to work.
  
2. Goals of Transport
  - a. Provide stabilization and transport of a newborn in as timely manner as possible with practitioners skilled in critical care delivery.
  - b. Provide referring physicians with a 24-hour direct link to Neonatal intensive care services.
  - c. Creation of complementary team based on mutual respect(transport team and referring hospital).
  - d. Maintain control and poise while out in the field on a call.
  - e. Must take concise full history from referring staff.
  - f. Focus your management on life-threatening problems. Goal is to normalize vital signs and blood glucose.
  - g. Most important interventions are A-B-C's(Airway, Breathing, Circulation).
  - h. Give pertinent information to parents, leave prognosis questions open-ended. Be clear, to the point and brief!!
  - i. Know about universal precautions and potential contagious conditions.
  - j. Document both referring and primary M.D.'s names/Tel#'s.
  
3. Transport Components
  - a. Team personnel(MGH currently uses Sr/Jr resident and Nicu or Picu nurse. **MUST BE CERTIFIED BY DR. INSOFT PRIOR TO MANAGING A TRANSPORT.**
  - b. Familiarize with all transport equipment and medications.
  - c. Fluent in all MGH Transport Team protocols, including back-up help procedures.
  - d. Knowledgeable in transport call intakes and data collection.
  - e. Familiarize yourself in emergency neonatal procedures:
    - \*Chest tubes, UAC/UVC, surgical emergencies, etc...

4. Clinical Assessment in the field
  - a. Full pertinent prenatal and delivery history. Obtain copies of both Maternal and neonate's chart.
  - b. Obtain your own set of vital signs ASAP to confirm history.
    - \*Maintain temp, cover infant's head with cap.
    - \*Place pretermes in isolette ASAP to minimize heat loss.
    - \*For micropremies(<1,250gms) use plastic wrap.
  - c. Perform pertinent physical examination
    - \*Respiratory distress signs (G/F/R)
    - \*Perfusion, murmurs
    - \*Activity level and neuro assessment(reflexes, tone)
  - d. Laboratory data
    - \*CBC, d-stick, ABG's, CBG's, x-rays, Bl. Cx, lytes.
    - \*Never jeopardize the speed in which you can return in waiting for lab results. Wait only for what is crucial to pt. care.
  
5. Treatment
  - a. Respiratory System
    - \*Keep pH>7.25 for premies, pCO<sub>2</sub> 40-55, PO<sub>2</sub> 60-80torr(FT), 40-60(premies). PPHN requires different mgmt.
    - \*Respiratory acidosis best treated with intubation and PPV
    - \*Metabolic acidosis treat with isotonic fluid bolus(10cc/kg) and/or sodium bicarbonate 1-2 meq/kg.
    - \*Apnea/hypoventilation leads to hypoxia, which then leads to bradycardia. Neonatal bradycardia is mainly caused by hypoxia!
  
  - b. Cardiovascular system
    - \*Rx shock/hypovolemia with isotonic fluid bolus(10cc/kg) up to 3 times if necessary; then consider pressors (dopamine/dobutamine)
    - \*For ductal-dependent CHD, use little supplemental O<sub>2</sub>.
    - \*PGE<sub>1</sub> infusion at 0.05-0.1 mcg/kg/min for suspected ductal-dependent CHD.. Maintain good pH and blood pressure.
  
  - c. Maintenance Fluids and Glucose
    - \*<1000gms/28 wks: D5W(or D10W) @ 100cc/kg/day
    - \*>1000gms/28wks: D10W @80cc/kg/day)
  
  - d. Infectious Diseases
    - \*Make sure CBC, diff, plts and Bl. Cx drawn before abx's.
    - \*Most common neonatal bact. pathogens: GBS, E. coli, Listeria(rarer), so typical antibiotic regimen includes Ampicillin(100mg/kg/dose) and Gentamicin(2.5mg/kg/dose)
    - \*Acyclovir started when have history consistent for Herpes.
  
6. Transport monitoring
  - a. Check vital signs and Temp frquently
  - b. Monitor with Pulse Oximetry(?correlation), CVR momitor

- c. Trust your clinical judgement. Mechanical devices can give false sense of security.
  - d. Ambulance and Helicopter noise makes auscultation very difficult.
7. Call Back
- a. Call MGH NICU for assistance and/or suggestions at any time
  - b. Familiarize with cellular telephone in equipment pack.
  - c. CALL BACK WITH CONCISE PT. REPORT PRIOR TO LEAVING HOME HOSPITAL(VITAL SIGNS, MEDS, DRIPS, I.V., VENT SETTINGS, SURGICAL ALERT, SPECIAL CONCERNS)

**IMPORTANT:**

***The most important fact is always ensure for you and your transport teammates safety while on route. If a patient is extremely unstable, in most circumstances stabilizing the pt. further at the referring hospital is your best bet before entering an ambulance or helicopter!!!***

**REFERENCES:**

- 1. Guidelines for air and ground transport of neonatal and pediatric patients, 1993, American Academy of Pediatrics.
- 2. Edge WE, Kanter RK and Walsh RF, Reduction of morbidity in interhospital transport by specialized pediatric staff, Critical Care Medicine 1994: 22, 1186-91.