

NEONATAL RESUSCITATION

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Historical Background

- First Official Guidelines Developed in United States 1979
- Various Committees Meet and Revise Guidelines Every 2-3 Years
- All Nursery Staff Required to Be Formally Certified Every 2 Years
- Significant improvement in perinatal outcome in past 20 years

Core Knowledge and Skills

- **A**irway- Establish Clear Airway
- **B**reathing- Ventilation & Oxygenation
- **C**irculation- Adequate Cardiac Output
- Reduce Heat Loss

Phases of Resuscitation

- Preparation
- Evaluation
- Resuscitation
- Post-resuscitation Evaluation

Resuscitation Priorities

Drying, Warming, Positioning,
Suctioning, Stimulation

BVM Vent

Oxygen

Chest

Compressions

Intubation

Medica
tions

Preparation

- Staff (physicians, nurses) – Assigned in Advance
- Communication between Obstetric team and Pediatric team
- Equipments

Resuscitation Assignments

- Team Leader- Airway
- Second Rescuer-
 - Pulse Check
 - Chest Compression
- Third Rescuer-
 - Medications
 - Equipment

Resuscitation Equipment

- Organized
- Readily Accessible
- Easy to Assemble

Resuscitation Equipment

- Intubation
- Bag & Mask
- Suction
- Warming Devices

Resuscitation-Oriented History

- Multiple Gestation (twins, triplets)
- Meconium Stained Amniotic Fluid
- Prematurity
- Narcotics Use in Previous 4 Hours

Antepartum Risk Factors

- Maternal Age >35 Yrs. Or <16 Yrs.
- Maternal Diabetes
- Maternal Hemorrhage
- Maternal Hypertension
- Drug Therapy
- Substance Abuse

Antepartum Risk Factors

- Anemia or Isoimmunization
- Previous Fetal/Neonatal Death
- Lack of Prenatal Care
- Multiple Fetuses
- Pre-term /Post-term Fetus (before 37 weeks or after 42 weeks)
- Small for Gestational Age
- Large for Gestational Age
- Premature Rupture of Membrane (ROM)

Intra-partum Risk Factors

- Prolonged Labor
- Prolonged ROM
- Prolapsed Cord
- Maternal Infection
- Foul Smelling Amniotic Fluid
- Meconium Stained Amniotic Fluid

Intra-partum Risk Factors

- Abnormal Presentation (breech)
- Abnormal Fetal Heart Rate
- Precipitous Delivery
- Profuse Bleeding

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Preventing Heat Loss

- Overhead Warmer
- Heat Lamps
- Incubator
- Warm Towels & Blankets
- Gloves Filled with Warm Water

Tactile Stimulation

- Hitting the Sole of the Foot
- Flicking the Heel of the Foot
- Rubbing the Newborn's Back
- When Drying Newborn with Warm Blanket
- When Suctioning Mouth or Nose
- Avoid Harmful Actions

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Bag-Valve-Mask Ventilation (BVM)

Indications:

- Apnea or Gaspings Respiration
- Heart Rate <100 bpm
- Persistent Cyanosis Despite O₂ Therapy

Bag-Valve-Mask Ventilation -Technique

- Neutral Position of Head
- Secure Mask Seal
- Avoid Excessive Pressure on Nose or Mouth

Ventilation of the Newborn

Assisted rate= 40 to 60 bpm

Signs of Adequate Ventilation:

- Bilateral Chest Expansion
- Bilateral Breath Sounds
- Adequate Heart Rate & Color

Indications for Intubation

- BVM Ventilation Not Effective
- Thick Meconium
- Prolonged Positive Pressure Ventilation (PPV)

Chest Compression

Indications:

- ◆ Despite Adequate Stimulation & Effective Ventilation With 100% O₂
- ◆ Heart Rate <60 bpm

Chest Compressions

- Rate: 90 per minute, Interposed by Vent.
- Compression - Ventilation Ratio: 3:1
- Stop Compressions When HR >80 bpm

Chest Compressions

Methods:

- Two Finger Chest Compressions
 - Two Fingers are Placed Just Below the Nipple Line
- Hands-Around-the-Chest Compressions
 - Two Hands Encircling the Chest
 - Two Thumbs at the Nipple Line

Medications

Epinephrine:

- Indications: HR <80 bpm Despite PPV & Chest Compressions
- Dose: 0.01 to .03 mg/kg IV, ET, IO (0.1 to 0.3 mL/kg of 1:10000)
- If no Response to ET , may Increase ET Dose to 0.1 mg/kg of 1:1000

Medications

Naloxone:

- Indications:
 - Respiratory Depression
 - Narcotic Administration Within 4 Hours of Delivery
- Dose: 0.1mg/kg IV, ET, IO, SQ

Common Post-Resuscitation Airway Complications

- Displaced ET Tube
- Obstructed ET Tube
- Pneumothorax
- Equipment Failure
 - Inadequate Ventilatory Support
 - Gastric Distension

Post-Resuscitation Evaluation & Care

- Temperature Regulation
- Acid-Base Status
- Blood Glucose
- Laboratory Studies
- Chest X-Ray

Neonatal Resuscitation

Ultimate Outcome : Healthy Baby

- Time is Vital
- Speed is Essential
- Preparation – a Must

**Thank You and
Good Luck!**