NEONATAL RESUSCITATION

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Specific information needed
1. History of mother -- age, due date, prenatal care, previous pregnancies and problems, medications, duration of labor, foul-smelling or stained amniotic fluid, possibility of twins.
2. History of infant -- if already delivered, when was delivery. How has infant behaved since delivery. What has been done for infant.

Specific objective findings
1. Vital signs, APGAR score at 1, 5 and 10 minutes.
2. Temperature or warmth of skin. Color. Spontaneous movement.
3. Meconium (brown/green/black stool fragments) in amniotic fluid or in newborn's airway.

Treatment
1. If baby is not delivered and head is not appearing at vaginal opening with contractions, transport rapidly and prepare to stop for delivery enroute if situation changes.
2. If baby is not delivered, but head visible with contractions (crowning), delivery is imminent.
    a. Set up clean or sterile area for delivering baby:
        i. Place sterile or clean drape between mother's legs.
        ii. Set sterile clamps, scissors, and suction on drape.
        iii. Put on sterile gloves.
        iv. Assign one attendant to mother, second to infant.
    b. As infant's head is delivering, put very gentle pressure against it with several fingers flat against head (not finger tips) to prevent an explosive delivery.
    c. As soon as head has delivered, use bulb suction to clear mouth (to back of mouth only, not throat) then nose (before delivery of infant's body if possible).
    d. Suction immediately after delivery also, using bulb syringe to suction first the mouth, then the nose. Administer O_2 near face and stimulate by drying with clean towel or blanket.
    e. If apparent meconium -- suction airway under direct laryngoscopic vision using catheter or ET tube to remove all visible meconium from the airway.
3. After baby delivered, assess general appearance.
    a. If infant pink, with good cry and active movement (APGAR 8-10):
        i. Wrap in clean, dry blanket.
        ii. Keep infant level with perineum.
        iii. Clamp cord in two places 8-10 inches from infant.
        iv. Cut cord between clamps.
        v. Bundle infant with mother, continue to monitor.
    b. *If infant color poor, weak cry, or limp* (APGAR 7 or less):
        i. Hold O_2 tubing near infant's face.
        ii. Keep infant warm.
        iii. Continue to stimulate with suction and drying.

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iv. Assist ventilation with bag-valve-mask using 100% O_2 by positive pressure if respirations are inadequate, heart rate is < 100, or central cyanosis persists despite 100% oxygen. Assist at a rate of 40 to 60 breaths/min.
v. Suction trachea under direct vision if any meconium remains in airway. Intubate if respirations poor.
vi. CPR if heart rate < 60/minute and unresponsive to ventilations.
vii. Clamp cord when infant level with perineum.
viii. Transport as soon as possible with Porta-Warmer or other infant warming system.

Specific precautions:

1. Neonatal resuscitation, unlike most other resuscitation situations, requires careful attention to temperature. For neonates the management priorities are:

   A Airway
   B Breathing
   C Circulation
   T Temperature

2. The newborn has very poor temperature control and circulatory and respiratory status are often entirely dependent on core temperature. If infant requires resuscitation, place in dry blanket on Porta-Warmer or other infant warming system. Wrap warmer and infant with silver swaddling if possible to aid in heat conservation.
3. Avoid over stimulation of the back of the pharynx during suctioning. This may cause bradycardia in newborn. Do suction nares, as babies breathe only through nose for the first few months.
4. If thick meconium is present in upper airway or an adequate airway cannot be obtained, use laryngoscope and suction through the endotracheal tube to clear airway under direct vision and avoid contamination of the lungs with meconium as much as possible. This should only be done under dire circumstances, since it is time-consuming and can cause heat loss and hypoxia -- minimize the time of suctioning.
5. Airway management should be kept as simple as possible. Oxygen delivered by tube to the area of baby's face is usually all that is needed to aid in resuscitation. Bag-valve-mask respirations and endotracheal intubation should be considered only if initial oxygen provision fails to revive the neonate.
6. Infants, particularly preemies, are very fragile. In most instances, basic stabilization by airway control, suctioning, temperature conservation and CPR enroute to the hospital is recommended. This is not the time to try IVs, drugs, or other ALS procedures in the field.
7. If venous access is needed, consider IO or umbilical routes.
8. Check for hypoglycemia.

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9. The preferred method of suctioning at present is a bulb syringe, 8-10 French suction catheter on *low* suction, or a DeLee suction when used in line with a suction unit (not the old mouth suction DeLee).

	SIGN	0 POINT	1 POINT	2 POINTS
A	Appearance (Skin Color)	Blue-gray, pale all over	Normal, except for extremities	Normal over entire body
P	Pulse	Absent	Below 100 bpm	Above 100 bpm
G	Grimace (Reflex Irritability)	No Response	Grimace	Sneeze, cough, pulls away
A	Activity (Muscle Tone)	Absent	Arms and Legs Flexed	Active Movement
R	Respiration	Absent	Slow, irregular	Good, crying