Neonatal Assessment and Resuscitation

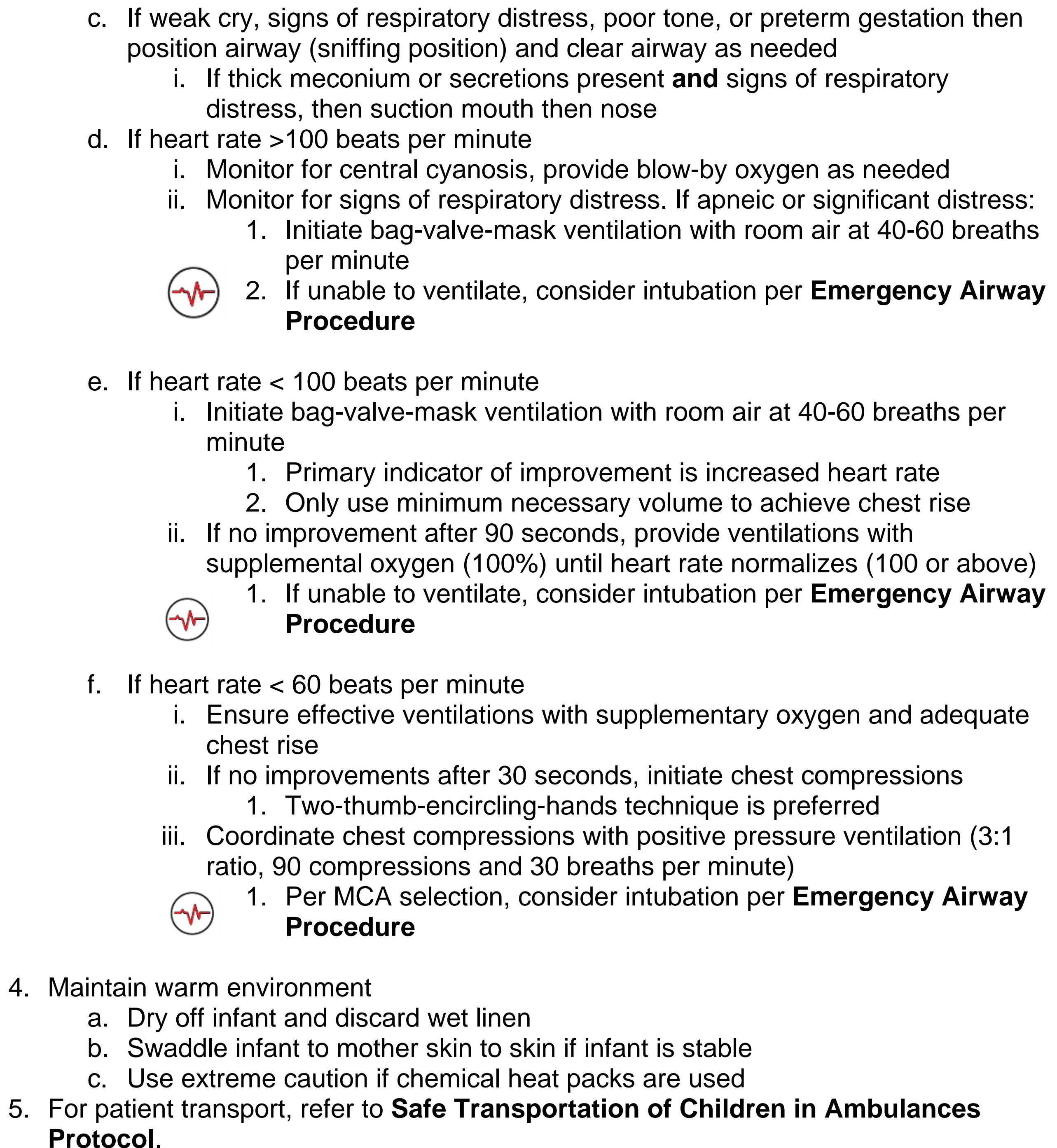
Aliases: newborn treatment, newborn resuscitation

This protocol should be followed for all newly born infants.

1. History
    a. Date and time of birth
    b. Onset of symptoms
    c. Prenatal history (prenatal care, substance abuse, multiple gestation, maternal illness)
    d. Birth history (maternal fever, meconium, prolapsed or nuchal cord, bleeding)
    e. Estimated gestational age (may be based on last menstrual period)
2. Exam
    a. Respiratory rate and effort (strong, weak, or absent; regular or irregular)
    b. Signs of respiratory distress (grunting, nasal flaring, retractions, gasping, apnea)
    c. Heart rate (fast, slow, or absent), auscultation of chest is the preferred method
    d. Muscle tone (poor or strong)
    e. Color/Appearance (central cyanosis, peripheral cyanosis, pallor, normal)
    f. APGAR score

Sign	0	1	2
Appearance – skin color	Bluish or paleness	Pink or ruddy; hands or feet are blue	Pink or ruddy; entire body
Pulse – heart rate	Absent	Below 100	Over 100
Grimace – reflex irritability to foot slap	No response	Crying; some motion	Crying; vigorous
Activity – muscle tone	Limp	Some flexion of extremities	Active; good motion in extremities
Respiratory effort	Absent	Slow and Irregular	Normal; crying

    g. Estimated gestational age (term, late preterm, premature)
    h. Pulse oximetry should be considered if prolonged resuscitative efforts or if supplemental oxygen is administered (goal 85-95% at 10 minutes)
3. Procedure
    a. Clamp cord in two places and cut cord between clamps
        i. Should be two to three minutes post delivery
        ii. One clamp 8” from the infant’s abdominal wall and second 2” further
    b. Warm, dry, and stimulate
        i. Wrap infant in dry towel or blanket to keep infant warm, keep head covered if possible
        ii. If strong cry, regular respiratory effort, good tone, and term gestation, infant should be placed skin-to-skin with mother and covered with dry linen

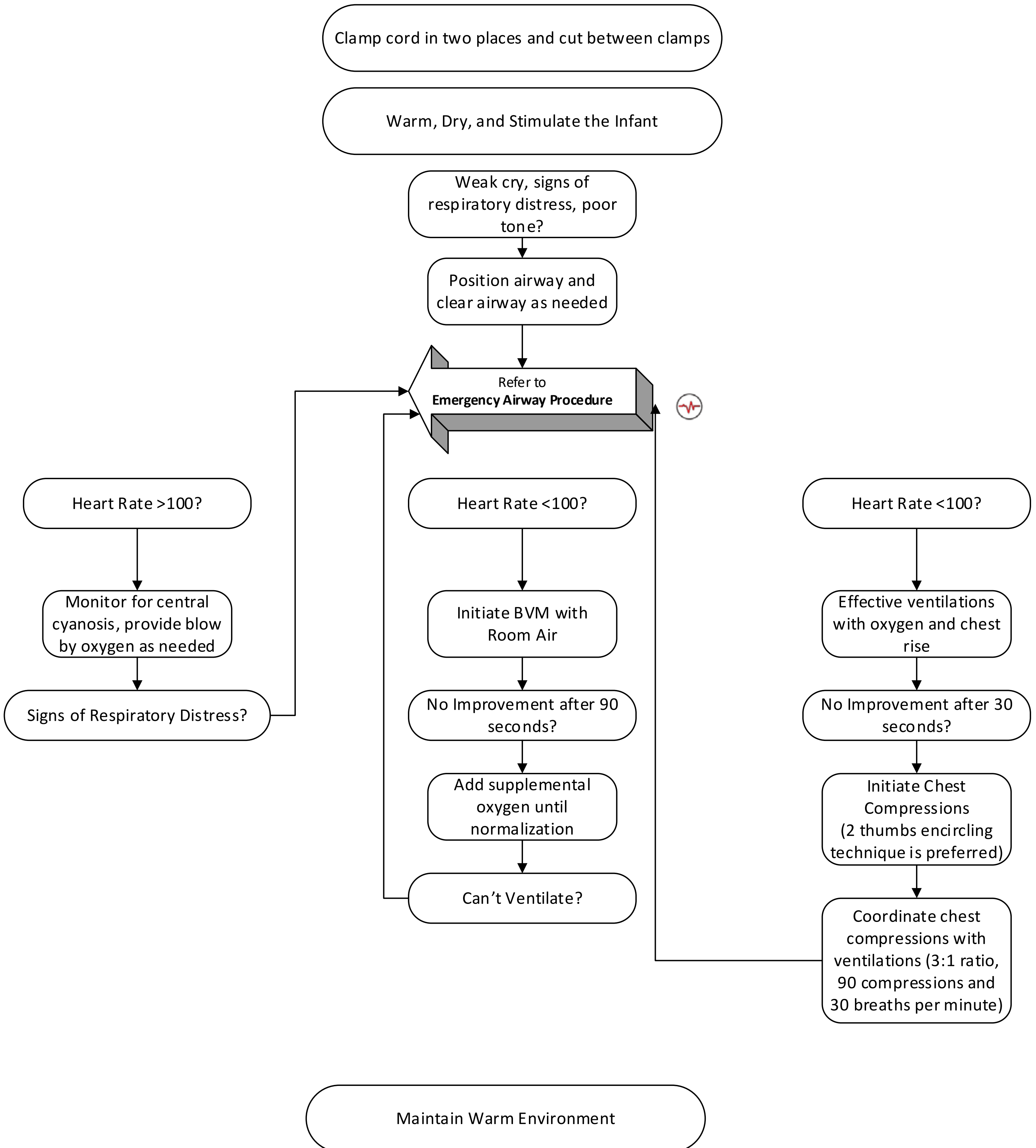


c. If weak cry, signs of respiratory distress, poor tone, or preterm gestation then position airway (sniffing position) and clear airway as needed
   i. If thick meconium or secretions present **and** signs of respiratory distress, then suction mouth then nose
d. If heart rate >100 beats per minute
   i. Monitor for central cyanosis, provide blow-by oxygen as needed
   ii. Monitor for signs of respiratory distress. If apneic or significant distress:
      1. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
      2. If unable to ventilate, consider intubation per **Emergency Airway Procedure**

e. If heart rate < 100 beats per minute
   i. Initiate bag-valve-mask ventilation with room air at 40-60 breaths per minute
      1. Primary indicator of improvement is increased heart rate
      2. Only use minimum necessary volume to achieve chest rise
   ii. If no improvement after 90 seconds, provide ventilations with supplemental oxygen (100%) until heart rate normalizes (100 or above)
      1. If unable to ventilate, consider intubation per **Emergency Airway Procedure**

f. If heart rate < 60 beats per minute
   i. Ensure effective ventilations with supplementary oxygen and adequate chest rise
   ii. If no improvements after 30 seconds, initiate chest compressions
      1. Two-thumb-encircling-hands technique is preferred
   iii. Coordinate chest compressions with positive pressure ventilation (3:1 ratio, 90 compressions and 30 breaths per minute)
      1. Per MCA selection, consider intubation per **Emergency Airway Procedure**

4. Maintain warm environment
   a. Dry off infant and discard wet linen
   b. Swaddle infant to mother skin to skin if infant is stable
   c. Use extreme caution if chemical heat packs are used
5. For patient transport, refer to **Safe Transportation of Children in Ambulances Protocol**.


Clamp cord in two places and cut between clamps
Warm, Dry, and Stimulate the Infant
Weak cry, signs of respiratory distress, poor tone?
Position airway and clear airway as needed
Refer to
Emergency Airway Procedure
Heart Rate >100?
Monitor for central cyanosis, provide blow by oxygen as needed
Signs of Respiratory Distress?
Heart Rate <100?
Initiate BVM with Room Air
No Improvement after 90 seconds?
Add supplemental oxygen until normalization
Can't Ventilate?
Heart Rate <100?
Effective ventilations with oxygen and chest rise
No Improvement after 30 seconds?
Initiate Chest Compressions (2 thumbs encircling technique is preferred)
Coordinate chest compressions with ventilations (3:1 ratio, 90 compressions and 30 breaths per minute)
Maintain Warm Environment