Treatment Protocol: NEWBORN / NEONATAL RESUSCITATION❶ Ref. No. 1216-P

Base Hospital Contact required for all newborn deliveries

1. Assist delivery; if amniotic sac intact and crown is presenting part, pinch sac and twist membrane to rupture and continue with delivery. Treat mother per *TP 1215-P, Childbirth (mother)*

2. Dry, warm and stimulate newborn by drying with towel ❶

3. Assess airway and initiate basic airway management *(MCG 1302; 1309)*
   Monitor pulse oximetry on right hand of newborn ❷
   For airway obstruction suction prn; mouth first then nostrils ❸

4. Clamp and cut cord ❹

5. If newborn is vigorous, after drying and warming with a towel place on mother's chest skin-to-skin to ensure heat transfer to the newborn; cover mother and newborn with a blanket

6. Transport newborn and mother to same facility (EDAP and Perinatal Center)

7. Reassess every 30 sec the need for assisted ventilation or CPR intervention

8. Check pulse at the precordium (auscultation), the base of the umbilical cord or at the brachial artery

9. If further resuscitation required, initiate resuscitation on scene prior to transport

IF PULSE < 100bpm OR poor respiratory rate, effort, or persistent central cyanosis ❺

10. Perform BMV with room air for 90 secs, squeeze the bag just enough to see chest rise then release; state "squeeze, release" to avoid hyperventilation

11. Recheck pulse every 30 secs
    For persistent poor respiratory rate, effort or central cyanosis, add **high flow Oxygen 15L/min** to BMV
    Assess the need for chest compressions

12. Establish vascular access *(MCG 1375)*
    If unable to obtain peripheral vascular access, place IO; should not take precedence over emergency transport ❻ ❼

IF PULSE < 60bpm ❽

13. Begin BMV with high flow oxygen and chest compressions at a rate of 120/min, maintain 3:1 compression to ventilation ratio (90 compressions to 30 ventilations per minute); continue for 2 minutes before pulse check.
    - Consider supraglottic airway in infants 3 kg or greater, if BMV ineffective or cardiac arrest despite BMV, size per MCG 1309

14. **Epinephrine (0.1mg/1mL) 0.01 mg/kg IV/IO push** dose per *MCG 1309*
    May repeat every 5 min

15. **Normal Saline 20mL/kg IV/IO rapid infusion** per *MCG 1309*
    CONTACT BASE for persistent poor perfusion *(MCG 1355)* to obtain order for additional **Normal Saline 20mL/kg IV/IO** per *MCG 1309*

16. Once pulse is > 60bpm, chest compressions should be discontinued

17. Transport newborn and mother to the same facility which is an EDAP or PMC and Perinatal Center with a NICU [9]

SPECIAL CONSIDERATIONS

❶ This protocol is be used for the newly born only; infants otherwise within the first month of life use TP 1210-P Pediatric Cardiac Arrest. The most important intervention for a resuscitation of the newly born in the field is to "Dry, Warm and Stimulate" – this allows for reversal of apnea after delivery.

❷ "Dry, Warm, and Stimulate then you have to Ventilate" – If respiratory effort poor or HR <100bpm then Ventilate using BMV. The most important signs to monitor are respiratory effort, pulse oximetry and heart rate. Measuring the pulse oximetry on the right hand provides the most accurate oxygen saturation in infants that are transitioning from fetal to normal circulation. At 60 seconds, 60% is the target with an increase of 5% every minute until 5 minutes of life when pulse oximetry is 80-85%.

Time Since Birth	Projected Increase in Pulse Oximeter Over Time
1 minute	60-65%
2 minutes	65-70%
3 minutes	70-75%
4 minutes	75-80%
5 minutes	80-85%
10 minutes	85-90%

Assessments that are used to initiate BMV and chest compressions.

Heart Rate (bpm)	Respiratory Distress/Apnea	Central Cyanosis Present	Intervention
> 100	No	Yes	Blow-by Oxygen
---	Yes	Yes/No	BMV
60-100	-	-	BMV
<60	-	-	BMV; Chest compressions

❸ Suction prior to delivery is no longer recommended for presence of meconium (thick or thin). Suctioning should occur only if there is airway obstruction present and mouth should be suctioned first followed by the nose.

❹ Delay in clamping and cutting the cord for up 30 to 60 seconds is recommended unless the newborn needs immediate resuscitation.

❺ Assessing pulse at the base of the umbilical cord is preferred, pulse rate < 100bpm is a sign of newborn distress and requires BMV.

❻ In obtaining vascular access, place an IO in a newborn use light pressure as the bone cortices are soft and the needle can easily penetrate both cortices of the bone.

❼ It is not necessary to check glucose in a vigorous newborn. Normal glucose is ≥40mg/dl. If glucose is measured during neonatal resuscitation, consider treatment only for symptomatic patients with glucose <40mg/dl per 1203-P.

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❽ Chest compression should be initiated in newborns with a pulse < 60bpm and continued until the pulse increases > 60bpm.

❾ Newborns requiring field resuscitation are at high risk for complications and will require critical care by neonatologists; consider stability of both patients for destination decisions (Mother and Newborn).