Term Neonatal Resuscitation

Facilitators

Objectives

1. Demonstrate clear team and patient communication during neonatal emergency
2. Prepare equipment for resuscitation and stabilization of term infant
3. Identify need for respiratory support and correctly intervene
4. Demonstrate post-resuscitation stabilization methods

Simulation Modality

Newborn Anne. Option to adjust per facility resources.

Roles in Scenario

Primary Nurse, Secondary Nurse, Provider

Optional per facility resources and group sizes: Charge Nurse, Parent/Guardian, Documenter, Observer (checklist), Respiratory Therapy, House Supervisor, Unit Secretary, Anesthesia, etc.

Recommend no more than 5-7 participants in each scenario so all can fully engage.

Pilot date and attendee plan

Plan to trial at least 1 week prior to allow adjustments in session, supply gathering, etc.

Materials list and set up details

Newborn Anne	Radiant Warmer (or facility routine location with gel mattress if non OB)	Neonatal CPAP and PPV devices with O2 blender and flow meter	SpO2 probe and Posey device
NRP Algorithm with SpO2 for minute of life ranges	Multiple baby blankets	Baby hat	OG tube with suction tubing and set up
Mock Documentation sheets	Neonatal Stethoscope	Gloves	Mock Glucometer (print out fine) and mock testing supplies
Cardiac ECG leads	Glucose Gel or Mock D10W (with IV supplies) per facility routine	Thermometer and thermometer probe to warmer, per facility	Optional for pre-brief: UVC kit, Peripheral IV supplies, Laryngscope, ET Tubes, Mock Epinephrine

Session Dates, Times and Location

Plan for 1 hour sessions: 20 min pre brief, 20 min scenario, 15 min debrief, and 5 minute reset.				

Interdisciplinary roles attending simulation:

Nursing and Providers

Participant sign up process, confidentiality form plan and session evaluation

Participant notification and reminder dates

Pre-work: *Optional*

Pre-brief and Confidentiality Agreements

- **Welcome:** Introduce purpose of session and review of Objectives
- **Overview of session:** Review management of term neonatal resuscitation and stabilization. Then we will show you around the simulation room, assign roles and read the lead in. We will work through the scenario and then debrief together. There are evaluations for feedback to help us improve future trainings.
- **Ground rules and Confidentiality Agreement:** Treat as real as possible. Request assistance as needed from facilitators. What happens here stays here.
    - Commit to confidentiality for learning in this space (via form or verbal). We are here to work through processes so we can explore what things may be needed further developed or equipment obtained, etc. This is about the team.
- **Review how to prepare to care for neonate through Q&A:**
    - Set Up: What supplies do we need to gather to care for neonate about to be born? Where are these located? Who sets up the space?
    - Prepare: What are the pre-birth questions? (Gestation? Clear amniotic fluid? Any risk factors? Umbilical cord plan (routine delayed 60 seconds)?
    - Plan: What staff are available for baby? When do you call for transport? What is HIE?

- **Review expected Neonatal Resuscitation recognition and response:**
  - Utilize NRP Algorithm to guide discussion
  - Respond: Dry, stimulate, assess gestation/tone/breathing or crying.
    - When to initiate CPAP with PEEP 5? (HR above 100bpm but infant has labored breathing, grunting, persistent cyanosis, *Pre Ductal* SpO2 under min of life goal. *We can titrate up to PEEP 8.*)
    - When to initiate PPV with PIP 25 ? (HR under 100bpm, apnea, gasping) At what rate, FiO2 and pressure? (30-60 bpm, 21% FiO2 for 35+ weeks and 21-30% for 32-34 weeks and >30% for <32 weeks, PIP 25-30 for 32+ weeks and 20-25 for <32 weeks)
    - When PPV is not resulting in visual chest rise or an increased heart rate after 15-30 seconds, what is the acronym to consider ventilation corrective steps? (MR. SOPA or MRS. OPA) **In order that would be most helpful.
      - What does each mean? (Mask adjustment, Reposition head/neck, Suction, Open mouth, Pressure increase 5-10 mmHg, Alternative airway)
    - When should alternative airway be placed? (Unable to ventilate with mask, heart rate remains <100 bpm)
      - LMA can be used as a primary device for ventilation when face mask or intubation are unsuccessful. (Size 1 for newborns 2-5kg).
      - Endotracheal intubation (appropriate size based on gestational age and weight)
      - Secure airway prior to starting chest compressions
    - When should compressions be initiated? (After 30 seconds *effective PPV-chest rise* via secured advanced airway and HR remains under 60bpm).
      - How are these coordinated on a neonate? (3:1 compression to ventilation ratio. Utilize the thumbs-encircling technique).
      - What is FiO2 required for compressions? (100%, also indication to apply ECG leads)
    - When is epinephrine considered? (When HR consistently below 60 bpm after 1 minute of effective CPR. Secure advanced airway). This is dosed by weight, refer to unit resources.

- **Review expected Neonatal stabilization:**
  - Sugar: Ensure glucose 50-110 mg/dL. Resuscitation utilizes sugar, replenish with 40% oral glucose gel (0.5 ml/kg) with feeding or D10W IV (2mL/kg) slow IVP over several minutes.
  - Temperature: Eliminate cold stress that pulls metabolic resources by drying, removing wet blankets, swaddle and put on hats when stable. Goal 36.5-37.5 C. Under 32 weeks place shoulders and below in plastic bag to retain moisture to decrease evaporation heat loss. Consider warming mattress.
  - Airway: Pre-ductal SpO2 based on minutes of life. Sniffing position ideal.
  - Blood pressure: Signs of shock may require 10mL/kg of NS over 5-10 minutes
  - Lab work: Screening for infection risk and metabolic pH state, if the infant deteriorates.
  - Emotional Support: Clear communication to family

Orient to room (enter simulation space)

- Introduce to Newborn Anne device. Review ability to assess heart rate, provide airway support, intubate, etc.
- Review equipment, materials, PPE, and references are available in the space.
- Orient to medications in space and how expected to administer.
- Discuss how to communicate to get more help, call lab, call provider, etc. during scenario.
- So we will get roles, read the scenario lead in and then start supporting a newborn just delivered. We will then debrief.
- Leave space for further questions regarding space or objectives/session purpose.

Role delegation

Per facility role decisions in session

Scenario lead in

Helen Home (they/them) is a 35-year-old G2P1 who presents with contractions that started a few hours ago while traveling in the car. They are 38 weeks today and contracts consistently now every 5 minutes so they presented to your Emergency department. They report routine prenatal care with 'nothing out of range, all went smoothly' (we are working to get records). The only notable health history is asthma. No labs or assessments yet done as the birthing person has just arrived.

They just ruptured, clear fluid and are now feeling pressure and birth is imminent. Your team is called in to care for the infant.

Scenario

Prepare for birth	Expected Participant Events:	Facilitator cues:
EFM (for OB facilities) FHR: 110 minimal variability, no accels, no decels UC: Every 3-5 minutes palpating strong	☐ Assemble the team ☐ Gather supplies ☐ Airway (t piece, neopuff, ambu bag) ☐ Suction ☐ Emergency medications ☐ IV access (IO, UVC, PIV) ☐ Thermoregulation (radiant warmer, warm blankets, warming gel mattress) ☐ Set up space ☐ Warm devices ☐ Test equipment (Warming, Suction, Ventilation) ☐ Ask 4 prebirth questions: ☐ Gestation ☐ Amniotic fluid ☐ Additional risk factors ☐ Umbilical cord management	• Once complete, baby is born. Delayed cord clamping for 60 sec is the plan while baby is laying on birthing person's chest • Birth time _____ (pending actual time of hosting session)

Assessment	Expected Participant Events:	Facilitator cues:
HR 110 Color Dusky Weak Cry	☐ Dry and stimulate on birthing person chest ☐ Position head/airway ☐ Clear secretions as needed with bulb syringe ☐ Auscultate heart and lungs ☐ Identify need to move off of the parent chest for intervention ☐ Communication to parents, family and team	• Prompt weak cry sounds • If needed, prompt 'How is the breathing? What would be next?'
Resuscitation support	**Expected Participant Events:**	**Facilitator cues:**
Grunting Retracting RR 70 HR 110 Lungs diminished and crackles bilaterally SpO2 68% at 3 minutes of life (prior to CPAP), no changes with CPAP RR now 0 HR 90	☐ Place in radiant warmer with head toward team in 'sniffing' position ☐ Apply saturation probe to right hand (most accurate) ☐ Auscultate ☐ Continue to dry and stimulate ☐ Identify grunting and need to start CPAP at 21% with PEEP of 5. ☐ Obtain temperature ☐ MR. SOPA demonstrated ☐ OG Suction ☐ Explain interventions to parents ☐ Clear communication to team on interventions and VS ☐ Identify need to start PPV ☐ Demonstrate appropriate breath rate (30-60 bpm) and FiO2 ☐ Assess chest movement with PPV	• Pause to update infant position if needed • SpO2 remains unchanged with CPAP • Infant now goes apneic

After 2 minutes PPV, HR now 110, SpO2 86% (7 min of life)	☐ Recognize no need for chest compressions at this time ☐ Apply ECG leads during PPV ☐ Identify appropriate SpO2 for minutes of life to stop PPV and transition to CPAP	• Infant begins to cry and vigorous movement
Stabilization	**Expected Participant Events:**	**Facilitator cues:**
HR 158 RR 64 SpO2 93% at 10 minutes of life on CPAP. Lungs clear but diminished. Glucose 30 Temp 97.6 Repeat glucose 41	☐ Weigh infant ☐ Apply temperature probe ☐ Assess glucose ☐ Identify need to provide glucose gel and feed or bolus D10W (consider IV or UVC placement for D10) ☐ Repeat glucose 30 minutes after intervention ☐ Provide warm environment (warmer, gel warming mattress, etc) ☐ Post stabilization plan as appropriate for facility level of care and service lines communicated to family and medical team	• If needed, prompt 'infant stabilized on CPAP, what do we now need to consider?'

Debrief

What went well? Anything we could do differently? Were any processes tested in this simulation? If checklist observer and/or documenter present in scenario, rely on their records to guide debrief discussion.

Objective	Expected Participant Events (as listed above in scenario)
Demonstrate clear team and patient communication during neonatal emergency	
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Demonstrate post resuscitation stabilization methods	

Evaluations

Reset