11

Ethics and Care at the End of Life

Neonatal Resuscitation Program™

Educational Focus

Scenario Outline

This case presents a term newborn whose mother has not felt fetal movement for several days. She presents in active labor and delivers vaginally shortly after arrival. A true knot is identified in the umbilical cord at delivery. At birth, the baby is limp and apneic, and there is no detectable heart rate. She does not respond to complex resuscitation efforts including intubation, chest compressions, UVC placement, and medication, and the scenario ends with the death of the newborn. The scenario focuses on the decision to discontinue resuscitation efforts following at least 20 minutes of resuscitation attempts. Learners are expected to prepare for the birth by asking the 4 pre-birth questions, assembling a resuscitation team based on perinatal risk, conducting a briefing and performing the equipment check.

Learning Objectives

Upon completion of the simulation, the learners will be able to:

- Demonstrate technical and behavioral skills necessary to perform complex resuscitation
- Use a cardiac monitor for accurate assessment of heart rate if pulse oximetry is not functioning, if the baby's heart rate is low, or if the baby has poor perfusion
- Summarize the ethical principles associated with starting and stopping neonatal resuscitation
- Demonstrate how to communicate with parents and involve them in ethical decision making whenever possible
- Describe how long to continue resuscitation attempts when the baby does not respond
- Demonstrate what to do when a baby dies
- Summarize how to help parents and team members through the grieving process

Debriefing Points

Points for discussion during debriefing could include:

- When it is reasonable to consider discontinuing resuscitation
- Key points for antenatal discussion with parents
- How to support parents and staff after a neonatal death
- Use of NRP Key Behavioral Skills

Reference Materials

Textbook of Neonatal Resuscitation, 8th edition, Lesson 7: Medications
Textbook of Neonatal Resuscitation, 8th edition, Lesson 11: Ethics and Care at the End of Life

Setup & Simulation

Equipment

For setup:

- Damp, lightly blood-stained blanket or towel
- Segment of simulated umbilical cord
- Simulated amniotic fluid or water
- Simulated blood

For use during simulation:

- All items included in the NRP Quick Equipment Checklist
- Umbilical cord clamps
- Additional items for complex resuscitation:
  - Sterile gloves (optional)
  - Antiseptic prep solution
  - Umbilical tape
  - Small clamp (hemostat)
  - Forceps (optional)
  - Scalpel
  - Umbilical catheters (single lumen), 3.5F or 5F
  - Three-way stopcocks or fluid transfer device
  - Normal saline for flushes
  - Syringes (1-mL, 3-mL, 5-mL, 10-mL, 20- to 60-mL)
  - Clear adhesive dressing to temporarily secure UVC to abdomen (optional)

Setup & Preparation

- Setting: Delivery room.
- The radiant warmer should be stocked with equipment and supplies as listed in the NRP Quick Equipment Checklist.
- Items for preparing and inserting an umbilical venous catheter and for administering epinephrine and volume should be placed in a code cart or emergency box.
- Moisten the simulator's skin with simulated amniotic fluid and blood and insert the standard umbilical cord segment into the abdomen. Wrap the simulator in a damp, lightly blood-stained blanket or towel, without a diaper, and place it under a blanket or towel on the mother's abdomen.

Learner Brief

Provide this information to the participants as they enter the simulation:

You have been asked to attend an imminent vaginal birth. The mother has not felt the baby move for a few days. The obstetric provider is present and the team is having difficulty finding a fetal heart rate. Please prepare for the birth.

Additional Information

Provide this information to the participants, if asked during simulation:

Gestational age:	40 6/7 weeks
Amniotic fluid:	Clear
Additional risk factors:	Mother has not felt movement for several days. No fetal HR can be found immediately before birth
Estimated fetal weight:	3000 g (7 lb 11 oz).
Umbilical cord management plan:	If the baby is not vigorous, I will clamp and cut the cord immediately.

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Scenario Progression

CRITICAL PERFORMANCE STEPS

- ☐ **Ask the 4 pre-birth questions to assess perinatal risk:**
  - What is the expected gestational age?
  - Is the amniotic fluid clear?
  - Are there additional risk factors?
  - What is our umbilical cord management plan?
- ☐ **Conduct pre-birth team briefing:**
  - Assemble team based on perinatal risk
  - Identify leader
  - Assign tasks
- ☐ **Perform equipment check.** May prepare items for intubation and emergency UVC placement.

Before delivery

Vaginal birth
• 40 6/7 weeks gestation • Clear amniotic fluid
• Mother has not felt fetal movement for several days. No fetal heart rate can be found immediately before the birth • Estimated birth weight 3000 g • If the baby is not vigorous, I will clamp the cord immediately

The baby has been born

L0

Starts PPV

60 s

- ☐ **Ask the 3 rapid evaluation questions:**
  - Term?
  - Good muscle tone?
  - Breathing or crying?
- ☐ **Move infant to radiant warmer for initial steps of newborn care:**
  - Provide warmth, dry (and remove wet linen), put hat on baby´s head, and stimulate
  - Position head and neck in sniffing position
  - Clear secretions from mouth and nose with bulb syringe, anticipating PPV
- ☐ **Evaluate breathing**
- ☐ **Initiate positive-pressure ventilation with 21% oxygen within 60 seconds of birth**

No change

Provides 30 seconds of PPV that moves the chest

- ☐ **Place pulse oximeter sensor on right hand or wrist** (pulse oximeter has no signal)
- ☐ **Request cardiac monitor**
- ☐ **Document resuscitation events.** The scribe may note 30-60 second time intervals for checking HR and oxygen saturation
- ☐ **Check HR after the first 15 seconds of PPV with 21% oxygen**
- ☐ **Announce, "I cannot detect a heart rate. Cardiac monitor not detecting a heart rate," and announce whether or not chest is moving**
- ☐ **If no chest movement, start ventilation corrective steps (MR. SOPA).** Complete as many steps as necessary to achieve perceptible chest movement with ventilation
- ☐ **When chest movement is achieved, announce, "Chest is moving NOW. Continue PPV for 30 seconds."**
- ☐ **Continue PPV that moves the chest for 30 seconds**

No change

Inserts alternative airway, provides PPV for 30 seconds, then starts compressions

No change

Administers epinephrine, repeats epinephrine and optionally administers volume expander

No change

Discontinues resuscitation efforts

20 min

- ☐ **Prepare newborn for parents**
- ☐ **Take newborn to parents and provide support**
- ☐ **Perform post-resuscitation debriefing**

End of simulation

- ☐ **After 20 minutes of resuscitation and no detectable heart rate, initiate team discussion regarding discontinuing efforts**
- ☐ **Communicate effectively with resuscitation team and family**
- ☐ **Discontinue resuscitation**

CRITICAL PERFORMANCE STEPS

- ☐ **Assess HR per auscultation or cardiac monitor** - (if in use)
- ☐ **Announce, "Chest is moving with PPV. HR is not detectable."**
- ☐ **Apply cardiac monitor leads and use monitor for heart rate assessment** (if not already done)
  - **Insert alternative airway (laryngeal mask or 3.5 ET tube)**
    - Confirm placement by observing for symmetrical chest movement, bilateral breath sounds, (no color change on CO2 detector, no increase in HR)
    - Ensure proper depth of ET tube by using NTL measurement or initial ET tube insertion depth table
- ☐ **Continue PPV while quickly securing alternative airway per protocol**
- ☐ **Secure temperature sensor to newborn and adjust radiant warmer to servo mode**
- ☐ **Re-assess HR after 30 seconds of PPV that moves the chest via alternative airway**
- ☐ **Announce, "Chest is moving. Cardiac monitor displays no detectable heart rate."**
- ☐ **Increase oxygen concentration to 100% for chest compressions**
- ☐ **Call for more help if needed**
- ☐ **Prepare UVC and epinephrine for potential use**
- ☐ **Start chest compressions standing at the head of the bed, using two-thumb method, and calling out "1 and 2 and 3 and breathe and…."**

- ☐ **Pause compressions and check HR after 60 seconds of coordinated chest compressions and PPV.**
  - Announce, "Chest is moving with PPV. Cardiac monitor displays no detectable HR."
- ☐ **Resume compressions with coordinated PPV**
- ☐ **Insert umbilical venous catheter**
- ☐ **Using closed loop communication, order and acknowledge the IV and/or ET dose of epinephrine**
- ☐ **Prepare correct dose of epinephrine**
- ☐ **Administer epinephrine via umbilical venous catheter (0.06mg [0.6mL]. Flush with 3 mL normal saline.)** If umbilical venous catheter is not ready, may administer epinephrine via the endotracheal tube (0.3 mg [3 mL] per endotracheal tube)
- ☐ **One minute after IV epinephrine, re-check HR**
- ☐ **Pause compressions and continue ventilation**
  - Announce, "Chest is moving with PPV. Cardiac monitor displays no detectable HR."
  - Assess CPR efficacy:
    - Assess chest movement with ventilation
    - Assess equal bilateral breath sounds
    - Ensure use of 100% oxygen.
    - Ensure proper technique for PPV and compressions
- ☐ **Resume compressions and coordinated PPV**
- ☐ **Evaluate for possible pneumothorax by transilluminating chest**
- ☐ **Repeat IV epinephrine dose 3–5 minutes after last IV epinephrine dose (optional)**
- ☐ **One minute after epinephrine is administered per UVC, re-check HR**
- ☐ **Administer 30 mL of normal saline volume expander over 5–10 minutes per UVC (optional)**