Teaching Newborn Diagnosis and Management Through Simulation Stations

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The purpose of this presentation is to highlight creative low to mid-level simulation opportunities to enhance education for nurse practitioner students in learning diagnosis and management of the newborn infant.
• Neonates are vulnerable population
• Families lack experience and knowledge in managing neonatal problems
• NNP’s, PNP’s and FNP’s must learn newborn and infant care
• There are well known common problems encountered in the newborn period.
• Clinical experience does not always provide opportunities to diagnose and manage all newborn problems.

Background
Rationale for Simulation Experience

- Lack of comprehensive learning within the “real” clinical setting
- Simulation offers a safe learning environment for students
- Simulation offers the opportunity to debrief the scenario, an area for further student development.
• Apgar Scoring
• Jaundice
• Heart murmurs
• Feeding disorders or difficulties
• Hypoglycemia
• Thermoregulation: Hypothermia

Common Newborn Problems
• Breastfeeding in the Newborn
• Transient Tachypnea of the Newborn
• Suspected Sepsis
• Family Discharge Teaching

Common Newborn Problems
• Students sign up for time blocks.
• Faculty and Preceptors are assigned a scenario
• Standardized parents can be paid actors, teaching assistants or other faculty unknown to students
• Students are given reading materials ahead of sim day
• Students rotate through learning stations
• Simulation is usually low level
• Evaluation of learning can be verbal or written: SOAP note

Setting the Scenarios
• Family Discharge Teaching:
  • Challenging Parent/s
  • Infant with special needs
  • Standardized parent with manikin infant

• Jaundice in the Newborn:
  • Moulage manikin infant
  • Include parent discussion
  • Sign out to MD
  • Determination of appropriate labs

Choosing Content
• SMARTER: Simulation Module for Assessment of Resident Targeted Event
  • Objective method of learning
  • Development of the scenarios
  • Scenario scripts for Standardized parents
  • Scenario determinations for manikin responses/presentation

SMARTER Tool
Objectives for Students:
- High Risk, Low Volume
- Unfamiliar patient problems
- Identified problems; no or little experience to practice care.

Smarter Tool
Objectives for sim:
• Determine APGAR scores for a newly born infant.
• Complete a physical exam on a newly born infant.

Preplanned Triggers:
• Set the stage for scenario
• Guide Student to make decisions
• Offer some common but abnormal findings for interpretation

Scenario Example: APGAR Scoring and Newborn Exam
Guiding or Course Outcome: NONPF core competencies for NP practice: Uses advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings.

<table>
<thead>
<tr>
<th>Objectives for the simulation</th>
<th>Objectives for sim: 1. Determine APGAR scores for a newly born infant. 2. Complete a physical exam on a newly born infant.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clinical content (to meet learning objective)</td>
<td>Completes Apgar Scoring based on Physical parameters: Activity Pulse Grimace Appearance Respiration</td>
</tr>
<tr>
<td>1. Knowledge, Skills, Abilities (that underlie good performance)</td>
<td>1. Uses formal scoring tool to determine 1 and 5 minute apgar scores for infant.</td>
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<tr>
<td>1. Pre-planned triggers (events during the simulation that trigger student to display KSAs)</td>
<td>Birth status: Born at 3:30pm, via NSD at 40 weeks gestation. 1 minute VS: HR 128, RR 18, irregular, Activity moving, not yet crying Grimace: 1 Color: hands and feet are pink</td>
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<tr>
<td>1. Targeted Responses (objectively observable behaviors that allow evaluation of KSAs)</td>
<td>2. Completes components of physical exam to determine apgars and continued physical assessment to include: Assessment of fontanel and head Eye exam and red reflex ENT exam Heart and lung sounds MS – hip flexion</td>
</tr>
<tr>
<td>1. Uses formal scoring tool to determine 1 and 5 minute apgar scores for infant.</td>
<td>5 minute VS: HR 130, RR 30, regular, crying Activity: moving, crying active Grimace: 1 Color: normal, hands and feet are pink</td>
</tr>
<tr>
<td>1. Uses formal scoring tool to determine 1 and 5 minute apgar scores for infant.</td>
<td>*Small cephalohematoma is present on infant’s scalp/ No other abnormalities on PE.</td>
</tr>
</tbody>
</table>

Course Number: NURS 648 Newborn Clinical
APGAR Simulation: Manikin

Students:
Knowledge, Skill Abilities (KSA)

APGAR scoring:
1. Activity and muscle tone
2. Pulse
3. Grimace (cannot be simulated)
4. Appearance: skin coloration
5. Respiration: RR and effort

Complete History and Physical Exam
Student/Simulation Evaluation:

Debriefing with Good Judgement Model
Documentation of simulation experience
Preconceived ideas compared to post-event?
Evaluation responses to simulation


• National Organization of Nurse Practitioner Faculties: Population Focused Competencies; Pediatric Primary and Acute Care Nurse Practitioner


• Shinick MA, Woo M, Horwich TB, Steadman R. Debriefing: The most important component in simulation. *Clin Sim Nurs*; 2011:7(3);e105-e111.

**Bibliography**