

SECTION I: SCENARIO OVERVIEW

Scenario Title:	Fluid Volume Deficit: Dehydration of 4 mo. r/t vomiting and diarrhea	
Original Scenario:	C. Madsen, MSN, RN	
Date - original	9/18/07	
Validation:	10/07	
Pilot testing:	10/07	
Revisions:	9/09, 9/11, 12/14 (QSEN) M. Miller, MA, RN, CHSE; 05/18 M. Solakian, MSN, RN, CPNP	
Estimated Scenario Time: 20 minutes Debriefing time: 40 minutes		
Target group: Pre-licensure students in Pediatrics, new graduates, transition students		
Core Case: 4-mo. old infant w/dehydration d/t vomiting/diarrhea. Maternal Social issues.		
Brief Summary of Case: 4-month old admitted to the Pediatric Unit with vomiting and diarrhea x 4 days accompanied by mother. Infant was seen 3 days ago in the Pediatricians office, but parent failed to return for a follow up visit (as instructed) 2 days ago, and also reported she did not follow instructions for giving pedialyte (ORS) because she could not get to the market. Instead, mother gave the infant dilute tea to drink for the past 3 days. Previous weight in MD office one month ago was 6.0 kg (75%); weight 3 days ago was: 6.2 kg (50%). IV has been started and D 5 ¼ NS with 20 mEq KCl is infusing at 37 mL/hour.		
Medical diagnosis: Severe dehydration.		
Learners are expected to perform a focused assessment for dehydration, recognize need for NS bolus, and interview the parent, determine the need for teaching and/or need for resources. All assessment, communication and interventions are age appropriate and sensitive to parent needs.		
References (APA)		
Perry, S.E., Hockenberry, M. J., Lowdermilk, D. L., & Wilson, D. (2014). <i>Maternal Child Nursing Care, (5th ed.)</i> , Elsevier Mosby: St. Louis, MO		
Colletti, J.E., Brown, K.M., Shariieff, G.Q., Barata, I.A., and Ishimine, P (2010). The management of children with gastroenteritis in the emergency department. <i>Journal of Emergency Medicine, 38(5):686-</i>		

SECTION II: CURRICULUM INTEGRATION

A. SCENARIO LEARNING OBJECTIVES

Learning Outcomes
1. Utilize principles and knowledge of caring practices, age and developmental stage, and cultural awareness to provide safe and effective nursing care for pediatric patients.
2. Apply critical thinking and clinical decision making skills to interpret assessment data and implement appropriate interventions.
3. Integrate understanding of multiple dimensions in patient care.
Specific Learning Objectives
1. Implement safety procedures for identification, hand hygiene and environmental isolation for body fluids.
2. Perform 60 second environmental assessment and correct immediate issues.
3. Gather relevant patient history, social environmental and contextual data.
4. Perform developmentally appropriate communication for 4-month old infant and family member.
5. Demonstrate a focused assessment on a 4-month old infant: include CV, respiratory, GI, GU and fluid status.
6. Identify abnormal assessment findings for an infant with dehydration.
7. Assess parent for handwashing technique and fill in learning gaps integrating caring practice and cultural awareness.
8. Recognize safety issues for the administration of IV fluids and appropriately intervene to trouble shoot to clinical practice guideline recommendations.
9. Utilize the appropriate PPE while caring for an infant with acute gastroenteritis.
10. Recognize the urgent treatment for severe dehydration in an infant is a NS or LR fluid bolus (20 ml/kg).
Critical Learner Actions
1. Identify self and role to parent; perform hand hygiene, update plan of care on white board.
2. Request permission to assess infant; identify infant and parent using 2 patient identifiers.
3. Assess fluid status by palpation of fontanelles; assess skin turgor, mucous membranes, capillary refill.
4. Recognize signs of dehydration in an infant.
5. Recognize discrepancy in report given about maintenance IV solution and makes accurate decisions.
6. Trouble shoot IV administration, administer a NS fluid bolus as ordered.
7. Assesses parent's readiness to learn and learning styles.
8. Recognize need for additional resources for parent.

B. PRE-SCENARIO LEARNER ACTIVITIES

Prerequisite Competencies	
Knowledge	Skills/ Attitudes
<input type="checkbox"/> Standard precautions; hand hygiene	<input type="checkbox"/> Fluid balance assessment for 4-month infant
<input type="checkbox"/> Pathophysiology and nursing care for infants with dehydration	<input type="checkbox"/> Fluid loss – weighing diapers; calculation of urinary output in mL/kg/hour.
<input type="checkbox"/> Urinary output for 4-month old	<input type="checkbox"/> Separating urine from diarrhea in diapered infants.
<input type="checkbox"/> Assessment findings/ mod-severe dehydration	<input type="checkbox"/> Safely administer IV fluids
<input type="checkbox"/> Accessing social resources for families in need.	<input type="checkbox"/> Standard Precautions vs. contact isolation
<input type="checkbox"/> Effective communication with parent regarding learning gaps	<input type="checkbox"/> Patient Centered Care – Assess learning gaps, style and intervene to teach parents.

SECTION III: SCENARIO SCRIPT

A. Case summary

4-month old infant admitted through clinic 4 hours ago with vomiting and diarrhea x 3-4 days. Infant accompanied by parent. Dx with moderate to severe dehydration. IV has been started and is infusing at 37 mL/hr.

B. Key contextual details

Acute care pediatric unit, fully staffed. Scenario begins with “handoff” change of shift report.

C. Scenario Cast

Patient/ Client	<input type="checkbox"/> High fidelity simulator – Sim Baby	
	<input type="checkbox"/> Mid-level simulator	
	<input type="checkbox"/> Task trainer	
	<input type="checkbox"/> Hybrid (Blended simulator)	
	<input type="checkbox"/> Standardized patient	
Role	Brief Descriptor (Optional)	Standardized Participant (SP) or Learner (L)
Parent	<p>Asks learners “who are you?” if learner(s) do not identify themselves on entering room.</p> <p>Watchful, but sitting in chair away from crib; seems detached and keeps looking at watch, using cell phone</p> <p>Verifies, if asked, that he/she changed one diaper since admission to hospital room.</p> <p>Responds to learner’s questions with little affect; states that neighbor suggested that herbal tea was best for vomiting.</p> <p>When asked about other parent, states “.... Left last week because baby cried too much”</p> <p>When asked, states “I have to get to work so I don’t lose my job. I have no money for pedialyte (ORS), food or rent.”</p>	SP
Nurse #1	Perform assessment; communicates with parent	Learner
Nurse #2	Check orders, labs, etc. Checks IV; initiates NS bolus when ordered by provider.	Learner
	Perform 60 second environmental assessment	

D. Patient/Client Profile			
Last name:	Paul	First name:	Melissa
Gender: Female	Age: 4 mo.	Ht: 61 cm	Wt.: 5.8 kg
Code Status: Full			
Spiritual Practice: unknown	Ethnicity: Caucasian		Primary Language spoken: parent speaks English
1. History of Present Illness			
<p>4-month old admitted to the Pediatric Unit with vomiting and diarrhea x 4 days accompanied by mother. Infant was seen 3 days ago in the Pediatricians office, but parent failed to return for a follow up visit (as instructed) 2 days ago, and also reported she did not follow instructions for giving pedialyte (ORS) because she could not get to the market. Instead, mother gave the infant dilute tea to drink for the past 3 days. Previous weight in MD office one month ago was 6.0 kg (75%); weight 3 days ago was: 6.2 kg (50%). IV has been started and D 5 ¼ NS with 20 mEq KCl is infusing at 37 mL/hour.</p>			
Primary Medical Diagnosis	Moderate to severe dehydration		

2. Review of Systems	
CNS	lethargic, anterior fontanelle sunken, poor suck
Cardiovascular	Sinus tachycardia; capillary refill prolonged.
Pulmonary	Clear bilaterally; tachypneic
Renal/Hepatic	Decreased urine output; no tears (reportedly voided 5 hours ago)
Gastrointestinal	Hyperactive bowel sounds
Endocrine	blood sugar greater than 60 mg/dl; weight loss
Heme/Coag	no bruising or petechiae
Musculoskeletal	Moves all extremities, decreased tone, weak, mottled
Integument	skin turgor recoil over 2 seconds;
Developmental Hx	Full term; coos, babbles, smiles (meeting milestones)
Psychiatric Hx	Noncontributory
Diet History:	Formula fed, no introduction of solids yet.
Social Hx	1 st child; parent appears tired, anxious, somewhat detached
Alternative/ Complementary Medicine Hx: Fed infant herbal tea	

Medication allergies:	NKDA	Reaction:	
Food/other allergies:	NKFA	Reaction:	

3. Current medications	Drug	Dose	Route	Frequency
	Acetaminophen Suspension (160 mg/5mL)	80 mg	PO	Every 4 hours as necessary for temp ↑ 100.6° F.

4. Laboratory, Diagnostic Study Results					
Na: 145	K: 3.8	Cl: 103	BUN: 18 mg/dL	Cr:	HCO ₃ : 16
Ca:	Mg:	Phos:	Glucose: 84 mg/dL		
Hgb: 11 Gm/dL	Hct: 33 %	Plt:	WBC: 15,000	ABO Blood Type:	
PT	PTT	INR	Troponin:	BNP:	
ABG-pH: 7.30	paO ₂ :	paCO ₂ :	HCO ₃ /BE:	SaO ₂ : 95%	
VDRL:	GBS:	Herpes:	HIV:		
CXR:	ECG:				

E. Baseline Simulator/Standardized Patient State

1. Initial physical appearance					
Gender: Female		Attire: diaper/gown			
Alterations in appearance (moulage): Erythematous diaper area (rash)					
x	ID band present, accurate On ankle		ID band present, inaccurate		ID band absent or not applicable
	Allergy band present, accurate		Allergy band inaccurate	x	Allergy band absent or N/A

2. Initial Vital Signs Monitor display in simulation action room:					
	No monitor display		Monitor on, but no data displayed	x	Monitor on, data displayed
BP: 60/30	HR: 160	RR: 48	T: 99.4° F (ax)	SpO ₂ : 95%	
CVP:	PAS:	PAD:	PCWP:	CO:	
AIRWAY:	ETCO ₂ :	FHR:			
Lungs:	Left: clear	Right: clear			
Heart:	Sounds: S ₁ S ₂				
	ECG rhythm: sinus @ 160x				
	Other:				
Bowel sounds:	Hyperactive			Other:	

3. Initial Intravenous line set up					
	Saline lock #1	Site:			IV patent (Y/N)
x	IV #1	Site:	Fluid type: D5/0.25 NS w/20 mEq KCl	Initial rate: 37 mL/hr.	
x	Main	Rt. ankle			
4. Initial Non-invasive monitors set up					
x	NIBP		ECG First lead:		ECG Second lead:
x	Pulse oximeter		Temp monitor/type		Other:
5. Initial Hemodynamic monitors set up					
6. Other monitors/devices					
	Foley catheter	Amount:	Appearance of urine:		
	Epidural catheter		Infusion pump: Alaris 37mL/hr.		
Environment, Equipment, Essential props					
1. Scenario setting: (example: patient room, home, ED, lobby)					
Patient in Pediatric Unit sleeping supine in crib, with side-rails up.					

2. Equipment, supplies, monitors					
(In simulation action room or available in adjacent core storage rooms)					
	Bedpan/ Urinal	x	Foley catheter kit	Straight cath. kit	x Diaper Scale
x	IV Infusion pump		Feeding pump	Pressure bag	x Wall suction
	Nasogastric tube		ETT suction	x Oral suction catheters	Chest tube kit
	Defibrillator		Code Cart	12-lead ECG	Chest tube equip
	PCA infusion pump		Epidural inf. pump	Central line Insertion Kit	Dressing Δ equip
x	IV fluid Type: D5/0.25 NS w/20 mEq KCl			IV Piggy back	Blood product

3. Respiratory therapy equipment/devices						
x	Nasal cannula		Face tent	x	Simple Face Mask	x Non re-breather mask
	BVM/Ambu bag		Nebulizer tx kit		Flowmeters (extra supply)	

4. Documentation and Order Forms						
x	Provider orders	x	Med Admin Record	x	H & P	x Lab Results
x	Progress Notes	x	Graphic record		Anes/PACU record	ED Record
x	Med recon		Transfer orders	x	Standing orders	ICU flow sheet
x	Nurses' Notes		Dx test reports		Code Record	Prenatal record
x	medical record binder,				Other: Electronic Medical Record	

5. Medications (to be available in sim action room)						
Medication	Dosage		#	Medication	Dosage	Route
Acetaminophen Susp 160 mg/5ml	80 mg	Oral/ PR		NS with tubing	20 ml/kg	IV

CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES

Initiation of Scenario: 3:30 pm “hand-off” change of shift report.

4-month old admitted to the Pediatric Unit with vomiting and diarrhea x 4 days accompanied by mother. Infant is formula fed at home prior to illness. Infant was seen 3 days ago in the Pediatricians office for onset of vomiting and fever (100.5F), but parent failed to return for a follow up visit (as instructed) 2 days ago, and also reported she did not follow instructions for giving pedialyte (ORS) because she could not get to the market. Instead, mother gave the infant dilute tea to drink for the past 3 days. Previous weight in MD office one month ago was 6.0 kg (75%); weight 3 days ago was: 6.2 kg (50%). The infant has not urinated since admit, but the report from the clinic was that she had a wet diaper with watery diarrhea just before coming over, around 1100. IV has been started and D 5 ¼ NS with 20 mEq KCl is infusing at 37 mL/hour (1 ½ times maintenance). She's kind of lethargic, fontanel is depressed, cap refill >3 sec, she cried a little when I put the IV in. The MD ordered pedialyte feedings every 30 minutes; I got 10 mL in her at 2:00 pm, but she was lethargic - didn't suck well at all. She vomited it and had diarrhea stool right after. Her stool didn't look bloody - was watery, green, with mucous; I sent a sample to the lab for Rotavirus, O&P (ova & parasites), occult blood and reducing substances.

STATE / PATIENT STATUS	DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>1. Baseline</p> <p>Baby sleeping, no fussing when nurses begin assessment.</p> <p>A diaper with 100 gms greenish stool at the bedside.</p> <p>Parent sitting in chair away from crib. Asks learners who they are if they do not introduce themselves.</p> <p>If asked, parent shows nurses the diaper that she/he changed 10 minutes ago.</p>	<p>Operator</p> <p>HR – 160 bpm RR – 40 BP- 60/30 T – 99.4°F. Display temp when thermometer placed in axilla.</p> <p>Fontanel – depressed Peripheral pulses - weak</p> <p>Triggers: Learners weigh diaper 5 minutes elapse Check IV fluids</p>	<p>Learner Actions</p> <ol style="list-style-type: none"> 1. introduce self to mother, wash hands, PPE, ID infant 2. Rapid assessment: ABC, I&O. 3. Checks IV fluids and confirms dry diaper. 4. Learner #1: begin full assessment 5. Learner #2: Check MAR, orders if clarification needed. 6. Weighs diaper and calculates stool and urine output. 	<p>Debriefing Points:</p> <ol style="list-style-type: none"> 1. Rationale for requesting a NS fluid bolus based on the history and physical examination. 2. Appropriate initial action when KCl in IV solution is noticed 3. Appropriate action: baby has not voided 4. Patient centered care: Strategies for communicating with parent 5. Safety: hand hygiene, identification of both infant and parent

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>2. Infant becomes fussy, cries.</p> <p>Parent ignores infant and looks at her watch &/or texting on cell phone.</p> <p>Parent startles at IV pump alarm</p>	<p>Operator:</p> <p>No changes in computer settings</p> <p>Triggers:</p> <p>Learner Actions: after 5 minutes Physician calls for update from Nurse (UOP, lethargy, I & O) Gives order for NS fluid bolus 120 mls rapid infusion.</p>	<p>Learner Actions:</p> <ol style="list-style-type: none"> 1. Learners collaborate on determining significance of assessment findings 2. Request for NS fluid bolus 20 ml/kg. 3. Nurse #1 explains actions and begins to interview parent 4. Nurse #2 trouble shoots IV alarm 	<p>Debriefing Points:</p> <ol style="list-style-type: none"> 1. Causes of infant's lethargy 2. Mechanisms for trouble- shooting IV alarms 3. Assessment of parent's behavior and possible reasons 4. Strategies for engaging parent in care of infant
STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>3.</p> <p>Parent answers questions about other parent stating "they left a week ago because of baby's crying"</p> <p>Parent worries about getting to work and losing job; cannot focus on teaching and becomes defensive if learner pushes</p>	<p>Operator:</p> <p>After fluid bolus delivered: HR: 150 RR: 35 BP: 70/40</p> <p>Triggers:</p> <p>Learner Actions within 5 minutes</p>	<p>Learner Actions:</p> <ol style="list-style-type: none"> 1. Learner interacts with parent 2. Attempt to start teaching about benefits of Pedialyte vs. herbal tea. 3. Recognize parent is unable to focus on teaching 4. Offer supportive services to assist with social issues 5. Reassure parent that nurses will care for baby while parent is at work 6. Give phone number of unit for parent to call 	<p>Debriefing Points:</p> <ol style="list-style-type: none"> 1. Patient centered care: assessment of ability to focus on teaching/learning style 2. Sensitive ways to assess for social issues and offer resources 3. Learner judgments about parental behavior with infant and about lack of involvement. 4. Rate calculation of fluid bolus: 120 mls X 10-15 minutes= 500 ml/hr.
<p>Scenario End Point: Charge nurse enters room to give learners a break. Nurses give SBAR to charge nurse. Expected to report: urinary output in mL/kg/hr.; NS fluid bolus in progress; KCl in IV solution held during bolus & question if it should have been there; report other relevant assessment findings.</p>			
<p>Suggestions to <u>decrease</u> complexity:</p> <p>Suggestions to <u>increase</u> complexity:</p>			

APPENDIX A: HEALTH CARE PROVIDER ORDERS

Patient Name: Melissa Paul		Diagnosis: Moderate to severe dehydration; r/o gastroenteritis
DOB:		
Age: 4 mo.		
MR#:		
X No Known Allergies		
Allergies & Sensitivities		
Date	Time	HEALTH CARE PROVIDER ORDERS AND SIGNATURE
12 Noon		Admit to Pediatric Unit; Contact Isolation
		IV fluids: NS bolus on admission (20 ml/kg) rapid infusion, then D5 ¼ NS at 37 mL/hr.
		Add 20 mEq KCl after 1 st void
		Diet: Pedialyte 10 mL orally every 30 minutes when tolerated
		Vital signs and measures: CR monitor, continuous O2 Sats
		strict Intake and Output; daily weights
		Lab Studies: Send stool for Rotavirus PCR, Ova & Parasites; Occult Blood, Reducing
		Substances.
		Parameters:
		Call MD for: heart rate greater than 170 bpm or less than 90 bpm;
		respiratory rate greater than 50 rpm; Temperature over 100.4F Axillary
Signature		

APPENDIX B: Digital images of manikin and/or scenario milieu

<p>Insert digital photo here</p>	<p>Insert digital photo here</p>
<p>Insert digital photo here</p>	<p>Insert digital photo here</p>

APPENDIX C: DEBRIEFING GUIDE

General Debriefing Plan			
<input type="checkbox"/> Individual	<input type="checkbox"/> Group	<input type="checkbox"/> With Video	<input type="checkbox"/> Without Video
Debriefing Materials			
<input type="checkbox"/> Debriefing Guide	<input type="checkbox"/> Objectives	<input type="checkbox"/> Debriefing Points	<input type="checkbox"/> QSEN
QSEN Competencies to consider for debriefing scenarios			
<input type="checkbox"/> Patient Centered Care	<input type="checkbox"/> Teamwork/Collaboration	<input type="checkbox"/> Evidence-based Practice	
<input type="checkbox"/> Safety	<input type="checkbox"/> Quality Improvement	<input type="checkbox"/> Informatics	
Sample Questions for Debriefing			
<ol style="list-style-type: none"> 1. How did the experience of caring for this patient feel for you and the team? 2. Did you have the knowledge and skills to meet the learning objectives of the scenario? 3. What GAPS did you identify in your own knowledge base and/or preparation for the simulation experience? 4. What RELEVANT information was missing from the scenario that impacted your performance? How did you attempt to fill in the GAP? 5. How would you handle the scenario differently if you could? 6. In what ways did you check feel the need to check ACCURACY of the data you were given? 7. In what ways did you perform well? 8. What communication strategies did you use to validate ACCURACY of your information or decisions with your team members? 9. What three factors were most SIGNIFICANT that you will transfer to the clinical setting? 10. At what points in the scenario were your nursing actions specifically directed toward PREVENTION of a negative outcome? 11. Discuss actual experiences with diverse patient populations. 12. Discuss roles and responsibilities during a crisis. 13. Discuss how current nursing practice continues to evolve in light of new evidence. 14. Consider potential safety risks and how to avoid them. 15. Discuss the nurses' role in design, implementation, and evaluation of information technologies to support patient care. 			
Notes for future sessions:			