

## SECTION I: SCENARIO OVERVIEW

<b>Scenario Title:</b>	Post-op Heel Cord Lengthening Case B_ Seizure Activity
Original Scenario Developer(s):	C. Madsen, MSN, RN
Date - original scenario	03/08
Validation:	04/08 M. Gilbert, MSN, Marjorie Miller, MA, RN
Revision Dates:	06/08, 10/10; 05/18 M. Solakian, MSN, RN, CPNP (MMiller)
Pilot testing:	05/08
QSEN revision:	05/12 M. Miller, MA, RN, CHSE

Estimated Scenario Time: 15-20 minutes                      Debriefing time: 30-40 minutes

Target group: Beginning Pediatric nursing students, new grad transition or orienting nurses.

Core case: 5 year old child, post-operative heel cord lengthening. History of Cerebral Palsy and seizure disorder.

QSEN Competencies:

- Safety
- Patient Centered Care
- Teamwork and Collaboration

Brief Summary of Case: This is the second (B) scenario of an unfolding case. It can be used as a follow up or a stand-alone case.

5 year old male on afternoon of surgery for bilateral heel cord lengthening for foot drop. Child has had cerebral palsy and seizure disorder since birth and is moderately developmentally delayed (mostly non-verbal with vocabulary of 25 words) Contracture has hampered physical therapy teaching child to walk. At 10<sup>th</sup> percentile on growth curve for both height and weight.

Learners are expected to perform initial assessment with a focus on neurovascular status of extremities and airway, assess for pain. As seizure begins, learners are to recognize, assess and time the seizure while positioning to protect the patient, communicate with mother as she arrives during the seizure and call charge nurse for assistance reporting findings using SBAR format.

Note: This scenario is designed for the high-fidelity Gaumard Hal, a 5 year with the ability to program seizures.

### EVIDENCE BASE / REFERENCES (APA Format)

Hazinski, M.F. (2013) <i>Nursing Care of the Critically Ill Child</i> , St. Louis, MO: Elsevier
Hockenberry, M.J., Loudermilk, & Wilson, D. (2014). <i>Maternal Child Nursing Care</i> (5 <sup>th</sup> Ed.). Maryland Heights, MO: Mosby Elsevier
Cronenwett, L., Sherwood, G., Barnsteiner, J. et. al. (2007) Quality and Safety Education for Nurses. <i>Nursing Outlook</i> . 55(3), 122-131. doi:10.1016/j.outlook.2007.02.006

## SECTION II: CURRICULUM INTEGRATION

<b>A. SCENARIO LEARNING OBJECTIVES</b>	
<b>Learning Outcomes</b>	
1. Utilize principles and knowledge of caring practices, age & developmental stage, and cultural awareness to provide safe & effective nursing care for pediatric patients.	
2. Implement clinical decision making skills to interpret data and implement appropriate interventions.	
3. Integrate understanding of multiple dimensions in patient care.	
<b>Specific Learning Objectives</b>	
1. Gather relevant patient, environmental and contextual data.	
2. Demonstrate developmentally-appropriate post-op assessment on a 5-year-old.	
3. Recognize, assess and implement immediate nursing actions for a child experiencing a seizure.	
4. Implement safe positioning for a child experiencing a seizure.	
5. Demonstrate developmentally appropriate communication to a 5-year-old, as well as to family members.	
6. Demonstrate the ability to treat common post-op abnormal findings in assessment.	
7. Reassure patient and family throughout care with clear, calm statements.	
8. Communicate significant data to inter-professional team using SBAR tool to obtain necessary orders for interventions.	
<b>Critical Learner Actions</b>	
1. Perform hand hygiene; Introduce self and role, and identify patient using 2 identifiers.	
2. Communicate in a developmentally appropriate manner with patient while performing assessment.	
3. Performs accurate post op assessment of the orthopedic pediatric client to include CSM.	
4. Anticipate possible seizure activity, planning for protecting patient.	
5. Assess sats and administer oxygen as indicated.	
6. Recognize seizure and appropriately position patient for safety.	
7. Call charge nurse and report change in status using SBAR tool.	
8. Collect data from mother and reassure in calm manner.	
9. Reassesses plan of care based on patient change and new orders.	

<b>B. PRE-SCENARIO LEARNER ACTIVITIES</b>	
<b>Prerequisite Competencies</b>	
Knowledge Competencies	Skill/ Attitudes Competencies
<input type="checkbox"/> Post-op assessment of developmentally delayed 5 year old child.	<input type="checkbox"/> Developmentally and culturally appropriate communication w/child & parent.
<input type="checkbox"/> Post-operative assessment and management of pediatric client following orthopedic surgery.	<input type="checkbox"/> Proper use of IV pump with volume control chamber.
<input type="checkbox"/> Current National Patient Safety Goals	<input type="checkbox"/> Role of nurse in calming family members in crisis situation.
<input type="checkbox"/> Structured communication tools. (SBAR)	<input type="checkbox"/> Routine post-op assessment & care, including CMS
<input type="checkbox"/> Pharmacology of anti-seizure medications and drug levels.	<input type="checkbox"/> Safety issues for child experiencing seizure activity <input type="checkbox"/> Recognize need to call for collaborative assistance

### SECTION III: SCENARIO SCRIPT

#### A. Case summary – (unfolding case #2 of 2)

Change of shift report 1600: Joseph Martinez is a 5-year-old male with cerebral palsy and a seizure disorder admit for heel cord lengthening surgery of bilateral Achilles tendons. History of developmental delay, minimally verbal with vocabulary of approximately 25 words.

Both legs are wrapped with kerlix gauze and an ace wrap, without drainage; Circulation-Motor-Sensation checks are good.

He received Tylenol w/codeine for pain an hour ago for a lot of moaning and restlessness and his HR is 115. He has settled down, so it appears that pain medication is effective. He is due for both a feeding and his Tegretol now at 1600. The orders are to start slow, and increase by 10 mL q4h. He got 10 mL@ noon, tolerating his last feeding without nausea or vomiting. You are due to give 20 mLs at his next feeding at 1600.

#### B. Key contextual details

Pediatric Unit: beginning of PM shift with normal staffing.

#### C. Scenario Cast

Patient/ Client	<input type="checkbox"/> High fidelity simulator	
	<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)
Primary nurse		Learner
Orienting nurse		Learner
Mother	Script: Mother arrives while child is having a seizure. Is upset, but responds to nurses interventions.	Standardized Participant (SP)
Charge Nurse	Script: comes into room when called with SBAR. Reports that she just spoke with MD who ordered a Tegretol level. Tells learners that she will stay while they go on a break.	Standardized Participant (SP)

D. Patient/Client Profile				
Last name:	Martinez	First name:	Joseph	
Gender: Male	Age: 5	Ht: 97 cm	Wt: 15 Kg	Code Status: Full
Spiritual Practice: Catholic		Ethnicity: Hispanic		Primary Language spoken: English
1. History of present illness				
<p><u>Source of information:</u> Mother</p> <p><u>Chief complaint:</u> inflexible Achilles tendon, making walking difficult</p> <p>HPI: Spasticity controlled with Baclofen; mother feels if heel cords more flexible, child might be able to walk and participate in Physical Therapy more fully.</p> <p>Past medical history: 5 year old male with Cerebral Palsy since birth- hypoxic event intra-partum. Moderate developmental delay; poor verbal ability (25 words). Admitted last month for seizures and started on Dilantin, but developed vomiting and a rash. Currently is stable on Tegretol.</p>				
<b>Primary Medical Diagnosis</b>		Post-op heel cord lengthening		

2. Review of Systems	
CNS	Seizure (grand mal and partial complex); Spastic quadriplegia.
Cardiovascular	No murmur or hypertension
Pulmonary	Dysphagia with previous history of multiple aspirations prior to placement of gastrostomy tube. Moist cough and coarse bilateral breath sounds.
Renal/Hepatic	Incontinent; LFT's mildly elevated; no jaundice and good renal function
Gastrointestinal	Constipation
Endocrine	Negative for diabetes; poor growth (in the 10 <sup>th</sup> % for age)
Heme/Coag	Anemia; Negative for bleeding disorders or bruising.
Musculoskeletal	Extremities thin; Severe bilateral foot drop; mild scoliosis; intrathecal pump
Integument	No rash
Developmental Hx	Developmental delay.
Psychiatric Hx	None reported
Social Hx	Lives with parents and 3 siblings
Alternative/ Complementary Medicine Hx	Ketogenic Diet

Medication allergies:	Dilantin	Reaction:	Total body rash, vomiting
Food/other allergies:	None known	Reaction:	

3. Current Medications			
Drug	Dose	Route	Frequency
Baclofen pump (intrathecal):	100 mcg	IT	daily
Carbamazepine (Tegretol) 30 mg/kg/day	110 mg	PO	Q 6h

4. Laboratory, Diagnostic Study Results					
Na: 138	K: 4.0	Cl: 100	HCO <sub>3</sub> : 24	BUN: 10	Cr: 0.4
Ca:	Mg:	Phos:	Glucose: 75	HgA1C:	
Hgb: 12	Hct: 36	Plt: 250	WBC: 7.0	RBC: 5	
PT	PTT	INR	Troponin:	BNP:	
AST: 40	ALT: 56	Lipase:	Albumin:	Lactate:	
ABG-pH:	paO <sub>2</sub> :	paCO <sub>2</sub> :	HCO <sub>3</sub> <sup>-</sup> /BE:	SaO <sub>2</sub> :	
VDRL:	GBS:	Herpes:	HIV:		
CXR:		ECG:			
CT:		MRI:			
Other:					

**E. Baseline Simulator/Standardized Patient State**

**1. Initial physical appearance**

Gender: Male	Attire: Hospital gown				
Alterations in appearance (moulage): dark, curly wig. Lower legs wrapped with kerlix and ace bandages (see photo's); elevated on pillows. Grapefruit juice on the bedside table. Program manikin for seizures. Pad back board (from crash cart) and place under sheet underneath patient. Program seizures at high level or they may not be visible to learners. Seizure precautions: Pad side rails, pediatric ambu bag present					
x	ID band present, accurate information		ID band present, inaccurate information		ID band absent or not applicable
x	Allergy band present, accurate information		Allergy band present, inaccurate information		Allergy band absent or not applicable

	No monitor display		Monitor on, no data displayed	x	Monitor on, standard display
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BP: 100/50	HR: 90	RR: 24	T: 36.6° C.	SpO <sub>2</sub> : 94 %
CVP:	PAS:	PAD:	PCWP:	CO:
AIRWAY:	ETCO <sub>2</sub> :	FHR:		
Lungs: Sounds/mechanics	Left: coarse crackles		Right: coarse crackles	
Heart:	Sounds:	S <sup>1</sup> , S <sup>2</sup>		
	ECG rhythm:	Normal sinus rhythm		
	Other:			
Bowel sounds:	Active bowel sounds x 4; Gtube with extension		Other:	

3. Initial Intravenous line set up						
	Saline lock #1	Site:				IV patent (Yes/No)
x	IV #1	Site:	RA	Fluid type: D5/0.45 NS w/20 mEq KCl/L	Initial rate: 50 mL/hour	IV patent (Yes/No)
x	Main					
x	Volutrol					
	IV #2	Site:		Fluid type:	Initial rate:	IV patent (Yes/No)
	Main					
	Piggyback					
4. Initial Non-invasive monitors set up						
x	NIBP	x	ECG First lead:		ECG Second lead:	
x	Pulse oximeter	x	Temp monitor/type		Other:	
5. Initial Hemodynamic monitors set up						
	A-line Site:		Catheter/tubing Patency (Y/N)	CVP Site:	PAC Site:	
6. Other monitors/devices						
	Foley catheter	Amount:	Appearance of urine:			
	Epidural catheter		Infusion pump: agency pump	Pump settings: 50 mL/hr		
	Fetal Heart rate monitor/tocometer			Internal	External	
Environment, Equipment, Essential props						
Recommend standardized set ups for each commonly simulated environment						
1. Scenario setting: (example: patient room, home, ED, lobby)						
Pediatric unit						

2. Equipment, supplies, monitors						
(In simulation action room or available in adjacent core storage rooms)						
x	Bedpan/ Urinal	x	Foley catheter kit	x	Straight cath. kit	x Incentive spirometer
x	IV Infusion pump	x	Volutrol		Pressure bag	x Wall suction
	Nasogastric tube		ETT suction catheters	x	Oral suction catheters	Chest tube insertion kit
	Defibrillator		Code Cart		12-lead ECG	Chest tube equip
	PCA infusion pump		Epidural infusion pump		Central line Insertion Kit	Dressing Δ equipment
	IV fluid type: D5/0.45 NS w/20 mEq KCl				Tubes/drains Type:	Blood product ABO Type: # of units:

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

4. Documentation and Order Forms						
x	Health Care Provider orders	x	Med Admin Record	x	H & P	x Lab Results
x	Progress Notes	x	Graphic record		Anesthesia/PACU record	x ED Record
x	Medication reconciliation		Transfer orders	x	Standing (protocol) orders	ICU flow sheet
x	Nurses' Notes	x	Dx test reports		Code Record	Prenatal record
x	Actual medical record binder, constructed per institutional guidelines				Other Describe: Seizure record and nonverbal pain scale	

5. Medications (to be available in sim action room)			
#	Medication	Dosage	Route
20 mL	Tegretol Suspension	100 mg/5mL	G-tube
20 mL	Tylenol with Codeine Elixir	7.5 mg (0.5 mg/kg) (Acetaminophen 120 mg w/ Codeine 12 mg in 5 mL)	G-tube

**CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES**

**Initiation of Scenario: (Shift Report @ 1600):**

Joseph Martinez is a 5-year-old male with cerebral palsy, developmental delay- pretty severe, I guess – mom says he is normally non-verbal, with a vocabulary of approximately 25 words. He has a history of a seizure disorder, is allergic to Dilantin and well maintained on Tegretol Suspension.

Today he had a heel cord lengthening of both Achilles tendons. Both legs are wrapped with ace wrap. No drainage. CMS good.

He takes feedings & meds through syringe– he is due for both a feeding and his Tegretol now at 1600. We are to start feedings slowly, so he received a 10 mL feeding at 1200 –tolerated without nausea or vomiting. We are increasing by 10 mL q. 4 h, so you are due to give 20 mL. He received Tylenol w/codeine for pain an hour ago for a lot of moaning, restlessness & a HR of 115. He has settled down, so it appears that pain med effective.

Vital signs: T (Ax) 37.2° C., HR - 100, RR 22 and O2 sat 96% on room air. Lungs a little coarse sounding – he’s still a little lethargic

His mom is very involved in his care and very knowledgeable. She just went down for a cup of coffee when he settled down and she should be right back up.

STATE / PATIENT STATUS		DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE	
<p><b>1. Baseline</b></p> <p>Lying in supine position with one pillow, legs elevated on pillows.</p> <p>Seizure precautions: Padded side rails, oxygen and pediatric ambu bag available at bedside.</p>	<p><b>Operator</b></p> <p>HR 90 RR: 24- coarse lung sounds, occasional cough. Lung sounds stay the same throughout the scenario</p> <p><b>Trigger:</b> Learners perform initial assessment and actions within 5 - 8 minutes</p>	<p><b>Learner Actions</b></p> <ol style="list-style-type: none"> <li>1. Performs hand hygiene</li> <li>2. Identifies self and engages child at developmental level to participate in assessment.</li> <li>3. Completes environmental assessment for O2, suction, correct IV solution and rate, amount of solution in volume control chamber</li> <li>4. Assesses CMS, pain, lungs.</li> <li>5. Attempts to have child cough and deep breathe Collaborate with team to determine if CPT is needed to keep secretions mobile.</li> </ol>	<p><b>Debriefing Points:</b></p> <ol style="list-style-type: none"> <li>1. NPSG to minimize risk of error and infection</li> <li>2. Components of focused pulmonary and neurovascular assessment; interventions if not within normal limits</li> <li>3. Strategies for engaging patient and mother in plan of care;</li> <li>4. Pain assessment in non-verbal pediatric patient.</li> <li>5. Strategies for coughing/ deep breathing in non-verbal child</li> <li>6. Causes of coarse rhonchi in post-op patient.</li> <li>7. Observes seizure precautions.</li> <li>8. Ketogenic diets in patients with epilepsy.</li> </ol>

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p><b>2.</b></p> <p>Mother enters room while child is having seizure. Appears alarmed, but answers questions from learners that this is type of seizure that is typical for him.</p> <p>Very upset with herself because she didn't give the morning Tegretol. Feels that this caused his seizure.</p>	<p><b>Operator:</b></p> <p>Short (30-60 sec) seizure VS during seizure: HR ↑ to 140, RR ↓ to 8 O2 sat ↓ to 90% VS return to baseline following seizure over 30 sec.</p> <p><b>Cues:</b> May need to repeat seizure (30-60 sec.) or have mother cue "Oh, he is having a seizure" if learners do not notice the second seizure.</p> <p><b>Triggers:</b> Learner actions accomplished within 7-10 minutes</p>	<p><b>Learner Actions:</b></p> <ol style="list-style-type: none"> <li>1. Recognizes onset of seizure; alerts team member</li> <li>2. Manages child's airway</li> <li>3. Positions on left side for safety, protecting from side rails or hard objects.</li> <li>4. Notes the time and assesses beginning and end of seizure activity.</li> <li>5. One nurse calls charge nurse to report change in status using SBAR. Notes time of onset, duration, airway, VS and oxygen saturations.</li> <li>6. Interacts positively with mother allowing her to help with positioning and care.</li> </ol>	<p><b>Debriefing Points:</b></p> <ol style="list-style-type: none"> <li>1. National Patient Safety Goals</li> <li>2. Agency policy/procedure for seizure precautions in the pediatric populations</li> <li>3. Potential causes for breakthrough seizures in the post-operative child:               <ol style="list-style-type: none"> <li>a. Missed dose? (onset, peak, duration of med)</li> <li>b. Interaction with anesthetic agents?</li> <li>c. Effects of anesthesia and stress of surgery, ↓-ing seizure threshold</li> <li>d. Grapefruit juice?</li> <li>e. Fever?</li> </ol> </li> <li>4. Need for early call for assistance</li> </ol>
STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>Seizure stops. Respiratory status effective. Child responsive with moans, but lethargic. Mother comforts child.</p>	<p>VS return to baseline following seizure over 30 sec.</p> <p><b>Triggers:</b> Lab tech enters room to draw blood. Nurses called to another patient's room.</p>	<ol style="list-style-type: none"> <li>1. Encourages mother to comfort child and maintain left sided position.</li> <li>2. Assesses neurovascular and respiratory status.</li> <li>3. Delivers SBAR to physician as he enters room to assess patient.</li> <li>4. Physician communicates with mother, orders Tegretol level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Strategies for involving parent while continuing priority assessments</li> <li>2. Rationale for physicians order for Tegretol level instead of administering the missed dose.</li> </ol>
<p>Scenario End Point: Lab tech enters to draw blood; mother states she is comfortable staying with child.</p> <p>Suggestions to decrease complexity: Scenario A</p> <p>Suggestions to increase complexity: Continuous seizures; status epilepticus; respiratory arrest; prolonged seizure lasting 5 minutes.</p>			

**APPENDIX A: HEALTH CARE PROVIDER ORDERS**

<b>Patient Name: Joseph Martinez</b>  <b>DOB: 09/14/XX</b>  <b>Age: 5 years old</b>  <b>MR#:</b>	<b>Diagnosis: Bilateral heel cord lengthening; Cerebral Palsy, seizure disorder</b>
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†Allergies & Sensitivities: **Dilantin (rash)**

Date	Time	HEALTH CARE PROVIDER ORDERS AND SIGNATURE
		1. Admit to Pediatric unit: s/p bilateral Achilles Tendon lengthening. Cerebral Palsy – seizure disorder
		2. D5.45NS w/20 mEq KCl/liter @ 50 mL/hr
		3. Carbamazepine (Tegretol) suspension (100 mg/5mL) 110 mg PO q.6 h.
		4. Acetaminophen w/codeine (120 mg/12 mg per 5 mL): give 3 mL (7.5 mg codeine) PO q. 4 hours pain scale 1-3/10.
		5. Ibuprofen 75 mg PO q. 6 hrs. prn mild pain (1-3/10), or fever.
		6. Ketogenic, soft diet when fully awake. 1 can Ketocal twice daily.
		7. CMS of both lower extremities q. 4 hrs. Keep ace wraps on both lower extremities at all times until MD changes dressing.
		8. Elevate legs on pillows.
		9. Bed rest until seen by Physical Therapy
		10. Physical Therapy in a.m. – post-op Achilles Tendon lengthening.
		<i>D. Bone, MD</i>
<i>Orders during scenario:</i>		
		Blood Tegretol level stat. Call Pediatrician MD with results.
<b>Signature</b>		<i>D. Bone, MD</i>

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

**Insert digital photo here**

**Insert digital photo here**

**Insert digital photo here**

**Insert digital photo here**

## 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"> <li>1. How did the experience of caring for this patient feel for you and the team?</li> <li>2. Did you have the knowledge and skills to meet the learning objectives of the scenario?</li> <li>3. What GAPS did you identify in your own knowledge base and/or preparation for the simulation experience?</li> <li>4. What RELEVANT information was missing from the scenario that impacted your performance? How did you attempt to fill in the GAP?</li> <li>5. How would you handle the scenario differently if you could?</li> <li>6. In what ways did you feel the need to evaluate the ACCURACY of the data you were given?</li> <li>7. In what ways did you perform well?</li> <li>8. What communication strategies did you use to validate the ACCURACY of the information or decisions with your team members?</li> <li>9. What three factors were most SIGNIFICANT that you will transfer to the clinical setting?</li> <li>10. At what points in the scenario were your nursing actions specifically directed toward PREVENTION of a negative outcome?</li> <li>11. Discuss actual experiences with diverse patient populations.</li> <li>12. Discuss nursing roles and inter-professional responsibilities during a crisis.</li> <li>13. Discuss how current nursing practice continues to evolve in light of new evidence.</li> <li>14. Consider potential safety risks and how to avoid them.</li> <li>15. Discuss the nurses' role in design, implementation, and evaluation of information technologies to support patient care.</li> </ol>			
Notes for future sessions			