

SECTION I: SCENARIO OVERVIEW

Scenario Title: Sepsis_ Meningitis 8-year old_ Case A	
Original Scenario Developer(s):	Solakian, M. MSN, RN, CPNP; Nevins, C. DNP, RN, CNE; Altamira, JV BSN, RN
Date - original scenario	06/11
Validation:	10/18 mmiller
Pilot testing:	06/17, 07/17
Revisions:	
<u>Estimated Scenario Time</u> 15-20 minutes	<u>Debriefing Time</u> :30 minutes
<u>Target group:</u> Pre-licensure nursing students in their Pediatric or critical care rotation	
<u>Core case:</u> 8-year old with sepsis secondary to meningitis with emergent admission via ER requiring care in the pediatric intensive care unit.	
<p><u>Brief Summary of Case:</u> 8-year-old female patient presented in the ER with 4-day history of high fever (39.4-40 °C) and rash for 24 hours. The rash started yesterday on the trunk, arms, and legs. The rash is rapidly coalescing and becoming dark purple in color, resembling purpura. Patient was treated at home with antipyretics (Motrin suspension 20mg/kg every 4 hours) and cooling measures which failed to reduce the fever. Patient is irritable and lethargic.</p> <p>Signs and symptoms are correlated with possible meningococcal meningitis. The primary diagnosis is sepsis, and signs and symptoms are consistent with septic shock. Initiation of treatment to treat the underlying infection and hypotensive distributive shock. Treatments include: rapid assessment of the patient, fever management, intravenous fluid resuscitation (bolus), antibiotic therapy, and establishing Isolation (“droplet”) precaution and vasopressor medications.</p>	
<u>QSEN Competencies</u> ✓ Patient Centered Care ✓ Patient Safety ✓ Evidence Based Practice ✓ Teamwork and Collaboration	<u>TeamSTEPPS Competencies</u>
<u>Other:</u> This scenario is appropriate for undergraduate nursing students in their pediatric rotation or new graduates. Complexity can be adjusted to level and needs of the learner.	

EVIDENCE BASE / REFERENCES (APA Format)
Cummings, B. M. <i>Treatment of Sepsis and Septic Shock in Children</i> . Medscape. Retrieved on June 23, 2013 from http://emedicine.medscape.com/article/2072410-overview .
Hazinski, M. F. (2013). <i>Nursing care of the critically ill child, 3rd Edition</i> , St. Louis Missouri: Elsevier.
World Federation of Pediatric Intensive and Critical Care Societies. (n.d). <i>Pediatric Sepsis Initiative Educational Materials</i> . Retrieved on June 23, 2013 from http://www.wfpiccs.org/education/doctors-nurses/documents/ .

SECTION II: CURRICULUM INTEGRATION

A. SCENARIO LEARNING OBJECTIVES

Learning Outcomes
1. Recognize and identify the pediatric patient with signs and symptoms of septic shock.
2. Apply decision making skills for appropriate fluid resuscitation to pediatric patients exhibiting hypotensive, distributive shock based on physical assessment findings and the guidelines for pediatric sepsis.
3. Prioritize assessment and interventions to assure safe, effective outcomes of care.
4. Communicate using closed loop methods within the healthcare team.
Specific Learning Objectives
1. Complete a comprehensive initial assessment and focused patient reassessment.
2. Demonstrate critical thinking with prioritization of care & clinical reasoning with patient interventions.
3. Recognize the patient with a febrile seizure.
4. Recognize home Motrin over dosing.
Critical Learner Actions
1. WII: wash hands, introduce self, identify patient
2. Perform focused and comprehensive assessments: Vital Signs, and reassessment after providing treatment.
3. Recognize signs of shock based on evaluation of vital signs, decreased level of consciousness, poor peripheral perfusion and response to fluid resuscitation.
4. Assess parent's willingness to learn and initiate discussion about central line infection, and over dosage of home Motrin.
5. Communicate with healthcare team members including physician, charge nurse or pharmacist.
6. Administer medications safely, including rapid administration of fluid bolus, antibiotic and antipyretic.
7. Recognize the difference between IV fluid resuscitation (bolus) and IV fluid maintenance.
8. Wear the appropriate personal protective equipment (PPE) for Droplet & Contact Precautions.
9. Re-assess and evaluate patient following interventions, recognizing core measures for sepsis.

B. PRE-SCENARIO LEARNER ACTIVITIES

Prerequisite Competencies	
Knowledge	Skills/ Attitudes
<input type="checkbox"/> Care of the child with sepsis or meningitis.	<input type="checkbox"/> Teamwork and Collaboration
<input type="checkbox"/> Developmental Level and Growth Ratio	<input type="checkbox"/> Safety
<input type="checkbox"/> Therapeutic Communication with parent of a critically ill child.	<input type="checkbox"/> Administration of suppository medication
<input type="checkbox"/> Nursing process	<input type="checkbox"/> IV Fluid and antibiotic administration
<input type="checkbox"/> Pathophysiology of meningitis and sepsis	<input type="checkbox"/> Professionalism
<input type="checkbox"/> Structured communication using SBAR	<input type="checkbox"/> Administration of vasopressor medication.

SECTION III: SCENARIO SCRIPT

A. Case summary

History of Present Illness: 8-year old female with 3-day history of high fever 39.4-40 °C and increasing, generalized rash for 24 hours. Parents brought their child today to the Emergency Room for evaluation. Parents report 3-day prior history of upper respiratory symptoms, diarrhea, vomiting and cough. The rapid onset of rash to the trunk, arms and legs started yesterday. The rash is rapidly coalescing and becoming dark purple in color, resembling purpura. Patient is irritable. Parents provided antipyretic, Motrin suspension 20 mg/kg every 4 hours, and cooling measures, which failed to reduce the fever.

PMH: Significant for prematurity, born at 32-week gestation, was intubated for 3 weeks and developed Necrotizing Enterocolitis at 2 weeks of age with 50% of jejunum small bowel resected. A Port-a-Cath is placed in left, upper chest to provide nightly TPN infusions. G-tube Mickey placed at 6 months of age, and used for supplemental feedings and medications.

B. Key contextual details

Child brought to the Emergency Room by parents after 3-day history of fever and rash. Signs and symptoms are correlated with sepsis and probable meningitis. Initial treatment is to prevent sepsis shock. Treatment to implement includes fever management, intravenous fluid resuscitation (bolus), intravenous fluid maintenance, antibiotic therapy, initiation of vasopressors to improve hypotension and follow “droplet” precautions demonstrating the use of PPE.

Immunizations: Not up-to-date: Influenza, Rotovirus, Prevnar, MMR. Received: Hepatitis B vaccine at birth, DTaP at 2 and 5 months

C. Scenario Cast

Patient/ Client	<input type="checkbox"/> High fidelity simulator	
	<input checked="" type="checkbox"/> Mid-level simulator (Mega-code Kid) with Sim Pad	
	<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)
Team Leader	Oversees and guides care; communicates with healthcare team	L
Primary Nurse	Performs Physical Assessment	L
Nurse Interventionist	Administers Medications	L
Recorder	Delivers SBAR Report	L
Charge Nurse/Physician	Support participants as needed	SP
Parent	At bedside	SP

D. Patient/Client Profile				
Last name: Dott	First name: Katie Scarlett			
Gender: F	Age: 8	Ht: 48 in	Wt: 20 kg	Code Status: Full
Spiritual Practice: Catholic		Ethnicity: Caucasian		Primary Language spoken: English
1. Past history				
<p><i>Chief Complaint:</i> High fever and rash</p> <p><i>History of Present Illness:</i> 8-year old female with 3-day history of high fever 39.4-40 °C and rash for 24 hours. Parents brought their child to the Emergency Room for evaluation. Parents report 3-day history of upper respiratory symptoms, diarrhea, vomiting and cough. The rapid onset of rash to the trunk, arms and legs started yesterday. The rash is rapidly coalescing and becoming dark purple in color, resembling purpura. Patient is irritable. Parents provided antipyretics (Motrin suspension 20 mg/kg every 4 hours) and cooling measures, which failed to reduce the fever.</p> <p><i>Past Medical History:</i> Significant prematurity born at 32-week gestation, was intubated for 3 weeks and developed Necrotizing Enterocolitis at 2 weeks of age with 50% of Jejunum small bowel resected. A Port-a-Cath was placed 3 years ago to provide nightly TPN infusions. G-tube Mickey placed at 6 months of age. Used for supplemental feedings and medications.</p>				
Primary Medical Diagnosis		Septic Shock w/Meningitis; Short Bowel Syndrome; TPN Dependence w/Gall Stones		

2. Review of Systems	
CNS	Irritable, lethargic, photophobia, nuchal rigidity; no noted seizures
Cardiovascular	Sinus Tachycardia, Port-a-Cath in left upper-chest; accessed with Huber needle
Pulmonary	Tachypnea, increased work of breathing, no chronic lung disease; oxygen sat 91%
Renal/Hepatic	No urinary tract infections, hepatomegaly or jaundice; gallstones
Gastrointestinal	No constipation, chronic diarrhea; poor appetite G-Tube Mic-Key (14 French)
Endocrine	No diabetes, no hypothyroidism
Heme/Coag	Bruises easily; no epistaxis.
Musculoskeletal	Moves all extremities; decreased muscle bulk and tone
Integument	Dark purple petechial generalized rash, purpura to chest, trunk, arms, legs
Developmental Hx	Tanner Stage 1 Female, normal appearing genitalia.
Psychiatric Hx	None
Social Hx	Attends Second grade with IEP plan, mild learning delays; Participates in Girl Scouts
Alternative/ Complementary Medicine Hx	None

Medication allergies:	Penicillin	Reaction:	Rash
Food/other allergies:	None	Reaction:	
Diet:	Table foods, Pediasure 2 cans daily		

3. Current medications	Drug	Dose	Route	Frequency
	Vitamin B12 (Cyanocobalamin)	100 mcg	Sub-Q	Monthly
	Actigal	200 mg	G-Tube	BID
	Multivitamin	1 chewable	PO	Daily
	Total Parenteral Nutrition (TPN)	60 ml/hr for 15 hours		Nightly
	Motrin	400 mg	GT	Q 4 Hours

4. Laboratory, Diagnostic Study Results: admit					
Na: 147	K: 3.5	Cl: 100	HCO3: 24	BUN: 34	Cr: 2.1
Ca: 9	Mg: 1.9	Phos: 3.5	Glucose: 124 mg/dl	HgA1C: 5	
Hgb: 11.2	Hct: 32	Plt: 248	WBC: 24	ABO Blood Type: AB+	
PT: 13	PTT: 32	INR: 0.92	Troponin: <0.04	BNP: 170	
ABG-pH: 7.25	paO2: 80	paCO2: 37	HCO3/BE: 24	SaO2: 91	
VDRL:	GBS:	CRP: 102	ESR: 14	Lactate: >4	
CXR:	ECG:	Herpes:	HIV:		

E. Baseline Simulator/Standardized Patient State			
1. Initial physical appearance			
Gender: Female		Attire: Wearing hospital gown and sports shorts	
Alteration in appearance (moulage): Presence of Port-a-Cath on left upper chest, accessed with Huber needle. Attach pictures of skin petechial rash on abdomen, and lower extremities. PIV in left hand with saline lock.			
X	ID band present, accurate	ID band present, inaccurate	ID band absent or not applicable
X	Allergy band present, accurate	Allergy band inaccurate	Allergy band absent or N/A

2. Initial Vital Signs Monitor display in simulation action room:				
	No monitor display	✓ Monitor on, no data displayed	Monitor on, data displayed	
BP: 80/60	HR: 140	RR: 30	T: 38.4 °C	SpO2: 95%
CVP:	PAS:	PAD:	PCWP:	CO:
AIRWAY:	ETCO2:	FHR:		
Lungs:	Left: Crackles	Right: Crackles		
Heart:	Sounds: Systolic Murmur grade 3/6		ECG rhythm: Sinus Tachycardia	
	Other: Friction Rub Left side at Erbs Point			
Bowel sounds:	Hypoactive, non-tender, mild distension		Other: G-Tube (Mic-Key 14 Fr.) Left mid-abd	

3. Initial Intravenous line set up				
✓	Saline lock#1	Site: LAC	✓ IV patent (Y/N) Yes	
	IV #1	Site:	Fluid type: 0.9% NS	Initial rate:
✓	Main	L upper Chest		TKO (5 ml/hr)
				IV patent (Y/N) Yes

4. Initial Non-invasive monitors set up				
✓	NIBP	✓	ECG First lead:	ECG Second lead:
✓	Pulse oximeter	✓	Temp monitor/type	Other:

5. Initial Hemodynamic monitors set up				
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6. Other monitors/devices				
	Foley catheter	Amount:	Appearance of urine:	
	Epidural catheter	✓	Infusion pump: Alaris	Pump settings: 5 ml/hr

Environment, Equipment, Essential props

1. Scenario setting (For example: patient room, home, ED, lobby)

Scenario takes place in Emergency Department, then later transfers to the Pediatric Intensive Care Unit.

2. Equipment, supplies, monitors

(In simulation action room or available in adjacent core storage rooms)

✓	Bedpan/ Urinal	✓	Foley catheter kit		Straight cath. kit		Incentive spirometer
✓	IV Infusion pump		Feeding pump		Pressure bag		Wall suction
	Nasogastric tube		ETT suction catheters		Oral suction catheters		Chest tube 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:	NS & D5 1/2 NS	IV fluid additives:		IV Piggy back		Blood product ABO Type: # of units:

3. Respiratory therapy equipment/devices

✓	Nasal cannula		Face tent	✓	Simple Face Mask	✓	Non re-breather mask
✓	BVM/Ambu bag	✓	Nebulizer tx kit	✓	Flowmeters (extra supply)		

4. Documentation and Order Forms

✓	Provider orders	✓	H & P	✓	Med Admin Record	✓	Lab Results
	Progress Notes		Graphic record		Anesthesia/PACU record	✓	ED Record
	Med reconciliation		Transfer orders		Standing (protocol) orders		ICU flow sheet
✓	Nurses' Notes	✓	Dx test reports		Code Record		Prenatal record
	Actual medical record binder, constructed per institutional guidelines				Other Describe: Consent Form Signed for Lumbar Puncture		

5. Medications (to be available in sim action room)

#	Medication	Dosage	Route	#	Medication	Dosage	Route
1	Acetaminophen	10 mg/kg	PR	4	Epinephrine Drip	0.05 mcg/kg/min	IV
2	Vancomycin (Dose per Pharm)	200 mg/100 ml	IVPB	5	Ursodiol	10 mg/kg/dose	GT
3	Meropenem	800 mg/100 mL	IVPB	6.	Ativan	1 mg	IVP

CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES

Initiation of Scenario:

8-year-old child in room with parent present; septic work-up being initiated; has a febrile seizure with generalized tonic-clonic movements. Report given to 1st group of students by Charge Nurse using the information from patient/client profile

STATE / PATIENT STATUS		DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
Baseline		Operator	Learner Actions	
STATE / PATIENT STATUS			Debriefing Points:	
<p>1. Baseline – Group 1 Pain 8/10 FLACC pain scale Neuro: lethargic, moaning, pain, not responsive to answering questions.</p> <p>Complains that “lights hurt my eyes” “Can you turn the lights off?”</p>		<p>Patient coughs and moans Lethargic Obtain VS: BP – 90/60 HR – 150 RR – 32 TEMP: 38.7 °C Sp O2: 92% Neck stiffness PERL sluggish 3-4 mm Lips: dry, cracked Moderate retractions, crackles bilaterally,</p> <p>CRF> 4 seconds, peripheral pulses 1 +, pale, generalized rash (purple petechiae) GI: Hypoactive BS</p> <p>Triggers</p> <p>Give fluid bolus 20 ml/kg or 400 mls rapidly over 10-15 minutes. If no fluid bolus, ↓ BP & ↑ HR</p>	<p>WII: wash hands, introduce self, identify patient, dress in appropriate PPE</p> <p>Conduct general survey including head-to-toe assessment and Central-Cath site/dressing check</p> <p>Note IV rate of 3 ml/hour. Initiate fluid bolus</p> <p>Initiate oxygen by nasal cannula</p> <p>Note generalized rash and assessment findings: decreased LOC, poor peripheral perfusion, no UOP. Report back to team</p> <p>Communicate with physician regarding findings</p>	<p>Rationale for proper hand washing and correct use of PPE</p> <p>Identify the patient ID Note allergy to PCN</p> <p>Clinical reasoning/evidence for fluid bolus as the top priority including all of the assessment findings indicate septic shock.</p> <p>Priority of obtaining the first set of vital signs.</p> <p>Elements of neuro status, CV, Respiratory, perfusion, Skin, GI and GU systems.</p> <p>Differentiate normal for patient vs. abnormal. Significance of abnormal neuro assessment.</p> <p>Role play SBAR communication with provider.</p>

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
<p>Frame 2</p> <p>Assessment findings with HTT Signs/Symptoms:</p> <ul style="list-style-type: none"> • Lethargic • Headache • Nuchal Rigidity • Photophobia • Poor skin turgor • Weak peripheral pulses • Capillary refills > 4 seconds 	<p>Operator</p> <p><i>If fluid bolus given BP & HR improve slightly</i> HR 135 BP 100/65 RR 28 T 38.7 °C Blanket removed or cooling measures initiated</p> <p><i>If no fluid bolus, BP & HR deteriorate</i> HR – 160 BP – 70/50 Poor perfusion No urine output</p> <p>Report lab results if learners call for report</p>	<p>Learner Actions:</p> <p>Perform focused Head-To-Toe assessments, followed by complete assessment.</p> <p>Give acetaminophen PR. If student attempts to give PO parent may refuse the medication or patient will have emesis. Remove blankets.</p> <p>Update parent with the initiation of fluid bolus, oxygen, administration of antipyretic & cooling measures.</p> <p>Initiate antibiotics without delay. Review signs of shock, hypotension with parent.</p> <p>Review or request lab results; including gram stain, lactate levels or differential from earlier CBC test. Repeat set of VS</p>	<p>Debriefing Points:</p> <p>Proper assessment techniques such as auscultation of the chest or noting the skin rash on chest, upper thigh and feet.</p> <p>Notify the provider of the assessment findings after complete assessment is obtained and after reassessment following fluid bolus.</p> <p>Consider additional fluid bolus for unresolved hypotension and poor peripheral perfusion.</p> <p>Cooling measures following administration of antipyretic.</p> <p>Initiation of antibiotics within the first hour and as soon as possible.</p>
	<p>Triggers:</p>		
	<p>Learner Actions complete within 7-10 minutes</p>		

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
Frame 3	Operator:	Learner Actions:	Debriefing Points:
<p>Patient begins to shake</p> <p>Unresponsive until seizure ends.</p> <p>Begins to cry after seizure.</p>	<p>Initiate tonic/clonic seizure</p> <p>↓ O2 sats quickly to 80%</p> <p>Lips cyanotic</p> <p>RR: 0, during seizure</p> <p>HR: > 155 bpm</p> <p>O2 sat: 86%</p> <p>Seizure ends:</p> <p>RR: ↑ 12-15/min</p> <p>HR: ↓ 145</p> <p>O2 sat: trend 86- 91% post seizure</p> <p>BP: 90/50</p> <p>Triggers:</p> <p>Learner Actions complete within 10 minutes.</p>	<p>Recognize seizure & note characteristics.</p> <p>Position patient for safety</p> <p>Administer PRN antiepileptic med.</p> <p>Ativan 1 mg IV Push over 2 minutes STAT</p> <p>Call provider to describe seizure characteristics, SBAR</p> <p>Initiate oxygen or increase the concentration by changing to a simple mask or non-rebreather.</p> <p>Evaluates vital signs after the seizure.</p>	<p>Signs of hypotensive, distributive shock.</p> <p>Importance of the initiation of antibiotics.</p> <p>Prepare for hypotension following antibiotics with release of endotoxin.</p>
<p>Scenario End Point: Seizure ends and patient saturations improve above 94%, Antipyretic given and temperature begins to decrease, Vital signs slightly improved with one bolus but it is not enough to correct abnormal BP and HR.</p>			
<p>Suggestions to <u>decrease</u> complexity: No seizure</p>			
<p>Suggestions to <u>increase</u> complexity: Continue with Group 2: Scenario B.</p>			

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



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"> 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:			