SECTION I: SCENARIO OVERVIEW

Scenario Title:	Adult Critical Care-Septic Shock
Original Scenario Developer(s):	Lindsay Shank, RN, MS, CNS, CCRN
Date - original scenario	12/07
Validation:	3/08
Revision Dates:	transferred to new template 7/10 mm; 2/13 bld, 3/18 A.Lucero, MSN/mm
Pilot testing:	3/08 Approved cok
QSEN revision:	2/13 Barbara Durham MSN, RN, CNE/M.Miller, MA, RN, CHSE

Estimated Scenario Time: 15 minutes Debriefing time: 30 minutes

Target group: Critical Care Nurse Training Program
Core case: Septic Shock
QSEN Competencies: Safety, Teamwork and Collaboration, Patient-centered care, Evidence-based Practice

Brief Summary of Case:
Eileen Paul is a 54 year old female, diagnosis urosepsis, admitted to Med-Surg 3 days ago for treatment with IV antibiotics. She was transferred to the ICU yesterday evening after a RRT call for severe hypotension. Her previous medical history (PMH) includes: NIDDM. PSH: tonsillectomy 1960. Social history: Drinks 6-8 drinks per day. Nonsmoker. Lives with Domestic Partner. No children. Shortly after admission, the Intensivist decided to intubate the patient and place a CCOmbo pulmonary artery/SVO_2 line with to guide therapeutic interventions.

Critical care scenario meant to practice and/or validate orientees' ability to synthesize and integrate knowledge presented in the Critical Care Training Program: sepsis, septic shock, interpret hemodynamic measurements and identify appropriate treatments.

Key Contextual Details:
Orienting nurse working with primary who is an experienced Telemetry nurse. There is also a charge and resource nurse present on your side of the CCU. The physician on call is not on the unit but is available by phone.

EVIDENCE BASE / REFERENCES (APA Format)

Gahart, B., et. al. (2018) Intravenous Medications. 34th Edition.

Dellinger, R. P. et al. (2016). Surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock: 2016 *Society of Critical Care Medicine. Retrieved from* http://www.survivingsepsis.org on 3/31/18.

The Surviving Sepsis Campaign Care Bundles. *Society of Critical Care Medicine*. Retrieved from survivingsepsis.org on 3/31/18.

Casserly, B., Levy, M.M. (2016) Hemodynamic monitoring in Sepsis. *Critical Care Medicine*, March 2016, Vol44(3) p.e178-e179. Doi:10.1097/CCM.0000000000001533.

Lewis, S. et.al. (2017) Medical-Surgical Nursing: Assessment & Management of Clinical Problems. 10th Edition, Chapter 66.

Jazwiak, M. et.al. (2016) Implementation of Sepsis Bundles . *Annual of Translational Medicine.* 2016 Sept: 4(17)332.

SECTION II: CURRICULUM INTEGRATION

A. SCENARIO LEARNING OBJECTIVES
Learning Outcomes
1. Apply nursing process and evidence based practice in clinical decision-making.
2. Implement critical thinking skills to interpret data and implement appropriate interventions.
3. Prioritize interventions based on accurate interpretation of data.
4. Integrate multiple dimensions of patient/family centered care
Specific Learning Objectives
1. Demonstrates situational awareness and acute changes in patient's condition/environment needing immediate attention. 2. Accurately anticipate, prioritize, and perform timely interventions required for the unstable patient with septic shock.
3. Recognize and initiate request for assistance and further orders appropriate to situation.
4. Use communication strategies to minimize risk associated with change of status reporting (SBAR). 5. Accurately interpret hemodynamic measurements and their effects on the components of cardiac output/index: heart rate, preload, afterload, contractility.
6. Make appropriate decisions regarding medication choices while administering medications safely and accurately. 7. Demonstrate team work and communication during emergency/stressful situations.
8. Evaluate effectiveness of interventions.
Critical Learner Actions
1. Perform hand hygiene, introduce self and role, identify patient using two patient identifiers. 2. Complete initial assessment pausing to deal with evolving situation
3. Recognize signs and symptoms of septic shock, hemodynamic instability and intervene appropriately. 4. Identifies and implements appropriate interventions in an optimal sequence per sepsis protocol.
5. Report change of status and pertinent data to health care team using standardized communication tool (SBAR) in a timely fashion
6. Implement interventions (nursing and medical) in an optimal sequence using 2 patient identifiers.
7. Reassesses EKG rhythm, vital signs, and O_2 sats for patient's response to medications.
8. Delivers accurate "handoff" report using SBAR to relieving nurse.

B. PRE-SCENARIO LEARNER ACTIVITIES	
Prerequisite Competencies	
Knowledge	Skills/ Attitudes
❑ ECCO Septic Shock & PACEP Modules	❑ Pulmonary artery set-up and maintenance
❑ Interpretation of pulmonary artery and SVO_2 measurements ❑ Interprofessional team communication in changing status situations	❑ Ability to obtain pulmonary artery measurements and hemodynamic calculations. ❑ Strategies to enhance Interprofessional teamwork and collaboration
❑ SCCM Sepsis Bundle including EGDT	❑ Medication/titrating IV gtt administration
❑ SOPs: Arterial Line, Hemodynamic Monitoring, Pulmonary Artery, SVO_2 Monitoring, Vasoactive Drip, insulin intensive	❑ IV Therapy

SECTION III: SCENARIO SCRIPT

A. Case summary
Eileen Paul is a 54 year old female, diagnosis urosepsis, admitted to Med-Surg 3 days ago for treatment with IV antibiotics. She was transferred to the ICU yesterday evening after a RRT call for severe hypotension. Her previous medical history (PMH) includes: NIDDM. PSH: tonsillectomy 1960. Social history: Drinks 6-8 drinks per day. Nonsmoker. Lives with Domestic Partner. No children. Shortly after admission, the Intensivist decided to intubate the patient and place a CCOmbo pulmonary artery/SVO_2 line with to guide therapeutic interventions.

B. Key contextual details
Orientee working with primary nurse is an experienced Telemetry nurse. Charge and resource nurse present on your side of the CCU. The physician on call is not on the unit but is available by phone.

C. Scenario Cast		
Patient/ Client	❑ X High fidelity simulator	
	❑ Mid-level simulator	
	❑ Task trainer	
	❑ Hybrid (Blended simulator)	
	❑ Standardized patient	
Role	**Brief Descriptor (Optional)**	**Standardized Participant (SP) or Learner (L)**
RN1	Primary	Learner
RN 2	Resource/helper/float	Learner
RN 3	Charge nurse	Learner
RN 4/SN	Orientee	Optional/Learner
MD	Intensivist Available by phone. Orders: 30mL/kg fluid bolus. Pt. weighs 90 kg. 2700 mL Repeat Lactate level in 6 hours	Standardized Participant (SP)
RCP	Respiratory (if needed)	Standardized Participant (SP)
Family	(if needed to address psychosocial aspect)	Standardized Participant (SP)

D. Patient/Client Profile					
Last name:	Paul		First name:	Eileen	
Gender: Female	Age: 54	Ht: 66 in	Wt: 200 lbs / 90.1 kg	BMI: 32.3	Code Status: Full
Spiritual Practice: Catholic		Ethnicity: Caucasian		Primary Language spoken: English	
1. History of present illness					
Ms. Paul was transferred to ICU from Med-Surg last night after deteriorating. She had been in Med-Surg for 3 days receiving IV antibiotics. Ms. Paul is hypotensive, tachycardiac and confused. An arterial line and CCOmbo PA/SVO2 line were inserted last evening and she was intubated.					
Primary Medical Diagnosis	Urosepsis, septic shock				

2. Review of Systems	
CNS	Lethargic, responds to touch only. MAE spontaneously but not to command. Pupils, equal, roı nd, sluggish but reactive to light.
Cardiovascular	S_1 S_2, no murmurs, bruits, or thrills, no JVD or pedal edema, peripheral pulses (radial & pedal) thready, capillary refill prolonged (5 seconds), skin, pale, cool, moist and intact. ECG shows sinus tachycardia (rate 132). Patient has PVCs.
Pulmonary	Respirations even. Lungs: bilateral fine crackles throughout all lung fields. Mechanically ventilated: Modes AC: Rate: 16, FiO_2 .40, PEEP 5, SpO_2 92%. PCXR shows bilateral infiltrates scattered throughout both lungs
Renal/Hepatic	Foley eter with small amount of cloudy, yellow urine.
Gastrointestinal	NPO
Endocrine	Last BS taken at 0312: 238; previous BS 226. FSBG each 1hr on Insulin drip
Heme/Coag	PT 30.7 seconds, aPTT 55.3 seconds, CBC: RBCs WNL, WBCs 15.7, HgB 10.4, HCT 39.3 Platelets 89K
Musculoskeletal	Moves spontaneously
Integument	Skin, cool, moist and intact.
Developmental Hx	wnl
Psychiatric Hx	None known
Social Hx	In long term relationship w/domestic partner. No children. Drinks 6-8 alc. Drinks/day
Alternative/ Complementary	None known

Medication allergies:	Penicillin	Reaction:	Rash
Food/other allergies:	NKFA	Reaction:	

3. Current Medications	Drug	Dose	Route	Frequency
	Norepinephrine Titrate to keep SBP> 100	10 mcg/kg/min	IV	Continuous gtt
	Insulin drip (per protocol)	3.5 units/hour	IV	Continuous gtt

4. Laboratory, Diagnostic Study Results					
Na: 142	K: 4.2	Cl: 101	HCO3: 20	BUN: 22	Cr: 1.6
Ca:	Mg: 2.2	Phos:	Glucose: 232	HgA1C:	
Hgb: 10.9	Hct: 39.3	Plt: 89K	WBC: 15.7	ABO Blood Type:	
PT: 30.7	PTT: 55.3	INR: 1.9	Troponin:	BNP:	
Ammonia:	Amylase:	Lipase:	Albumin:	Lactate: 4.8	
ABG-pH:	paO2:	paCO2:	HCO3/BE:	SaO2:	
VDRL:	GBS:	Herpes:	HIV:		
CXR: Bilateral patchy infiltrates		ECG: ST w/ PVCs	(rate 132)		
CT:		MRI:			
Other: ALT – 52; AST – 49;					

E. Baseline Simulator/Standardized Patient State (This may vary from the baseline data provided to learners)					
1. Initial physical appearance					
Gender: Female		Attire: hospital gown, (or clothes)			
Alterations in appearance (moulage): Patient is orally intubated. Vent settings: Mode: AC Rate 16 FiO_2:.40; PEEP 5 Simulate pale, cool and moist skin: Ice bags to arms, hands, chest and face for 15 minutes prior to scenario. Remove prior to scenario starting. Spray with glycerin and water immediately prior to beginning of scenario					
x	ID band present, accurate information		ID band present, inaccurate information		ID band absent or not applicable
	Allergy band present, accurate information		Allergy band present, inaccurate information	X PCN	Allergy band absent or not applicable

2. Initial Vital Signs Monitor display in simulation action room:							
	No monitor display		Monitor on, but no data displayed	X	Monitor on, standard display		

BP: 92/47	HR: 132	RR: 16	T: 102.6F	SpO^2: 92%
CVP: 6 mmHg	PAS: 31 mmHg	PAD: 17 mmHg	PCWP: 14 mmHg	CO: 2.76 L/min
AIRWAY: WNL	$ETCO^2$:	FHR:	SVO2: 52 mmHg	
Lungs: Sounds/mechanics	Left: fine crackles		Right: fine crackles	
Heart:	Sounds:	S1, S2		
	ECG rhythm:	ST w/PVCs		
	Other:			
Bowel sounds:	Hypoactive	Other: CI 1.42, PVR 382, SVR 1899 RVSWI 5.9, LVSWI 33.7		

3. Initial Intravenous line set up							
	Saline lock #1	Site:					IV patent (Y/N)
X	**IV #1**	Site:	RFA	Fluid type: D5 ½ NS	Initial rate: 150 ml/hr	X	IV patent (Y/N) YES
X	Main						
	Piggyback						
X	**IV #2**	Site:	RU cordis	Fluid type: Norepinephrine (Levophed) 8 mcg/min	Initial rate: 15mL/hr	X	IV patent (Y/N) YES
X	Main						
X	**IV #3**	Site:	RU PA port	Fluid type: Insulin 250 units/250 ml NS (1:1 concentration) 3.5 units/hr	Initial rate: 3.5 ml/hr	X	IV patent (Y/N) YES
X	Main						

4. Initial Non-invasive monitors set up					
x	NIBP	x	ECG First lead: II		ECG Second lead:
x	Pulse oximeter	x	Temp monitor/type	X	Other: wave capnography

5. Initial Hemodynamic monitors set up					
x	A-line Site: R wrist	x	Y /N)	CVP Site: RIJ	PAC Site: RIJ

6. Other monitors/devices					
	Foley catheter – insertion kit	Amount: 150 ml		Appearance of urine: Yellow, slightly cloudy with sediments	
	Epidural catheter	X	Infusion pump: 3 channel	Pump settings: D5 ½ NS @ 150 ml/hr Norepinephrine 15 mL/hr; Insulin 3.5 mL/hr	Ventilator: AC 16, FiO2 40%, Peep 5
				CCOmbo/SVO2 Monitor	
	Fetal Heart rate monitor/tocometer			Internal	External

Environment, Equipment, Essential props

Recommend standardized set ups for each commonly Standardized environment

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

Critical Care Unit

2. Equipment, supplies, monitors (In simulation action room or available in adjacent storage rooms)							
	Bedpan/ Urinal	x	Foley catheter kit		Straight cath. kit		Incentive spirometer
x	IV pump -3 channel		PCA infusion pump	x	Pressure bag x2	x	Wall suction
x	Central line Insertion	x	ETT suction cath	x	Oral suction catheters		Chest tube insert kit
x	Defibrillator	x	Code Cart/meds	x	12-lead ECG		Chest tube equip
x	IV	NS 500 mL/1000 ml	IV fluid additives: Primary/2nd IV tubing; drip chart	pressure lines for transducing CVP; strips for PAP, PAOP that are close to given parameters Ventilator			

3. Respiratory therapy equipment/devices						
x	Nasal cannula	x	Airway box/tray	S	x	Non re-breather mask
x	BVM/Ambu bag		Nebulizer tx kit		Ventilator	

4. Documentation and Order Forms							
x	Provider orders	x	MAR	x	H & P	x	Lab Results
x	Progress Notes		Graphic record		Anes/PACU	x	ED Record
x	Medication		Transfer orders	x	Standing (protocol)	X	CCU flow sheet
x	Nurses' Notes	x	Dx test reports		Code Record		Prenatal record
x	Actual medical record binder, constructed per institutional guidelines				Other Describe: lab reports, CXR CVP, PAOP, PAP & Hemodynamic numbers with same values from scenario.		

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

#	Medication	Dosage	Rt	#	Medication	Dosage
1	Norepinephrine 8mg in 250 mL	8 mcg/kg/min Rate=15ml/hr	IV	2	Insulin 250 units/250ml	3.5 ml/hr
3	Epinephrine		IV	4	Dopamine 400 mg/250mL D5W	10 mcg/kg/min Rate= 17 mL/h

Pt weight = 90kg

CASE FLOW / TRIGGERS/ SCENARIO DEVELOPMENT STATES			
Initiation of Scenario: Report: Eileen Paul is a 54 year old female, diagnosis urospesis, admitted to Med-Surg 3 days ago for treatment with IV antibiotics. She has a **past medical history** of NIDDM and **surgical history** of tonsillectomy. **Social history**: Drinks 6-8 drinks per day is a nonsmoker and lives with her Domestic Partner. She has no children. She was transferred to the ICU yesterday evening after a RRT call for severe hypotension. Shortly after admission, the Intensivist decided to place a CCOmbo pulmonary artery/SVO_2 line to guide therapeutic interventions. She has had the initial fluid resuscitation of 2600 mL IV fluid. She is currently on a Norepinephrine drip at 10 mcg/kg/hour and Insulin at 3.5 units per hour. The physician's order is to titrate the Norepinephrine gtt to keep the SBP greater than 100 mmHg.			
STATE / PATIENT STATUS	**DESIRED LEARNER ACTIONS & TRIGGERS TO MOVE TO NEXT STATE**		
1. Baseline Ms. Paul is lying quietly with her eyes closed. She does not arouse until you gently shake her and then she moans. Neck veins flat Peripheral pulses thread, Skin: moist, cool, pale. Lungs: fine crackles bilat, **Cue:** HOB is slightly ↑to 30° Patient has arterial line and CCOmbo with SVO2. Norepinephrine and Insulin gtts are infusing per MD order	**Operator** • O_2 sats 92% 40% FiO2 • EKG – sinus tach, 132 • ABP –92/47 (MAP 62) • R 16 • T – 102.6F **Current hemodynamic display**: SVO2: 52 PAP 31/17; CVP 6, PAOP 14 CO 2.76 CI 1.42; PVR 382; SVR 1899; RVSWI 5.9, LVSWI 33.7 **Triggers:** • Learner Actions complete within 5 minutes	**Learner Actions** • Perform hand hygiene, introduce self and role, identify patient using two patient identifiers. • Check vital signs and hemodynamic status (BP, HR, O2 sats) • Focused assessment based on patient condition • Reposition patient to increase perfusion, lowers head of bed/flat • Confirms transducers are level with phlebostatic axis, performs square wave test, re-zeros transducer after repositioning patient	**Debriefing Points:** • Strategies for complying with NPSG's in acute situations • Rationale for positioning • Interpretation of hemodynamic values and significance of findings • Signs and symptoms of decreasing cardiac output • Strategies for communicating with patient to decrease own and patient anxiety • Decision points for priority setting nursing interventions (improve oxygenation)

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
2. No change.	**Operator:** HR 138; EKG: ST RR 16; SpO2 94% if placed on >50% FiO2 BP 80/50 (MAP 60) T 102.6F **Hemodynamic readings** SVO2: 50; PAP 32/15; CVP 5, PAOP 12 CO 2.19; CI 1.11, PVR 358, SVR 1956, RVSWI 5.8, LVSWI 20.0 **Triggers:** ▪ Learner Actions complete within 6 minutes ▪ If incomplete, gradually ↓ BP, ↑ HR, ↓ LOC	**Learner Actions:** • Obtain new set of hemodynamic numbers. • Identifies hemodynamic parameters that need to be manipulated in order to improve patient condition • Increases oxygen delivery method (face mask or NRB) • Identifies appropriate interventions based on EGDT algorithm and treatment for septic shock • Notify MD or Intensivist of patient's status using SBAR and anticipates orders to be received	**Debriefing Points:** ▪ Decision points and rationale for priority setting immediate nursing interventions for patients in septic shock ▪ Communication strategies to minimize risks of error when reporting change of status ▪ Nurse's role in interpreting oxygenation/perfusion and hemodynamic status. ▪ Importance of continued reassessment of unstable patient ▪ Discuss key assessment parameters for a patient with a compromised hemodynamic status ▪ Discuss purpose/benefits of EGDT

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
3. No change in patient condition **Cue:**	**Operator:** HR 138 EKG: ST RR 16; SpO2 94%on 50% FiO2 BP 80/50 (MAP 60) T 102.6F **Triggers:** • Learner Actions completed within 8 minutes • Resident arrives-gives orders to perform all actions in listed in Learner Actions if learners had not already done them. • Gradually increase CVP to 8 mmHg with fluid bolus and increase BP to 100/60 with norepinephrine	**Learner Actions:** • Identify appropriate interventions per the sepsis bundle, early goal directed therapy (EGDT) o Obtain lactate level and blood cultures o CVP $\geq$ 8 mmHg (give fluid bolus 30 ml/kg (2700 mL) to keep MAP > 65 o Norepinephrine 1-2 mcg/min; titrate MAP>65 • Obtains/verifies patient weight for dose calculation • Confirms two patient identifiers prior to administering medications	**Debriefing Points:** • Components of sepsis bundle and treatment for septic shock • Significance of CVP and MAP in the treatment of sepsis • Importance of continued reassessment of unstable patient • Correct drug/dose calculation • Ensuring 5 rights are confirmed prior to med admin

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO MOVE TO NEXT STATE		
4. No change	**Operator:** HR 108 EKG: ST RR 16 BP 96/62 **Hemodynamic numbers: (after interventions)** SVO2: 68; PAP 26/12; CVP 10, PAOP 18 CO 3.24; CI 1.94, PVR 279, SVR 1733, RVSWI 8.3, LVSWI 49.6 **Triggers:** End scenario after 20 minutes and debrief.	**Learner Actions:** • Analyze SVO2 & hemodynamic numbers to determine if interventions have been effective. • Revise the patient's plan of care • Suggest additional meds/ interventions needed to improve the patient's condition- • Report findings to MD • Communicate change of status to patient and family.	**Debriefing Points** • Evaluate effectiveness of interventions by reassessing critical parameters • Importance of continued reassessment of unstable patient • Consider next steps in patient's plan of care. • Strategies for communicating with physician to minimize risks of error during reporting change of status • Debate the differences between local practice and best practice according to evidence-based research.
Scenario End Point: End the scenario when treatment team (orientees) perform all of the actions that are listed or when RESIDENT orders them			
Suggestions to <u>decrease</u> complexity: Suggestions to <u>increase</u> complexity: This scenario requires knowledge synthesis and integration of content presented in the Critical Care Training Program. It is appropriate for CCU orientees and may be adapted for use with ADN/BSN/entry level Master's students if the content was covered.			
Normal Hemodynamic Values: CVP 0-8 mm Hg, CO 4-8 L/min, CI 2.5-4.5 L/min/m^2, PAP 15-30/8-15 mmHg, PAOP (wedge) 8-12 mmHg, PVR 120-200 dynes, SVR 800-1200 dynes, SV 50-100 ml/beat, LVSWI 43-62 g/m/ m^2, RVSWI 7-12 g/m/ m^2			

HEALTH CARE PROVIDER ORDERS

Patient Name: Eileen Paul **DOB:** **Age: 54** **MR#:**	**Diagnosis:** Urosepsis, septic shock
☐ No Known Allergies ☒ Allergies & Sensitivities: Penicillin	

Date	Time	**HEALTH CARE PROVIDER ORDERS AND SIGNATURE**
		Allergies: PENICILLIN Code Status: FULL
Signature		Dr.

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			
☐ Individual	☒ Group	☐ With Video	☐ Without Video
Debriefing Materials			
☒ Debriefing Guide	☒ Objectives	☒ Debriefing Points	☒ QSEN
QSEN Competencies to consider for debriefing scenarios			
☒ Patient Centered Care	☒ Teamwork/Collaboration	☐ Evidence-based Practice	
☒ Safety	☐ Quality Improvement	☐ Informatics	

Sample Questions for Debriefing

1. Describe the experience of caring for this patient 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 perform well?
7. What communication strategies did you use to validate ACCURACY of your information or decisions with your team members?
8. At what points in the scenario were your nursing actions specifically directed toward PREVENTION of a negative outcome?
9. Consider potential safety risks and how to avoid them.
10. What three factors were most SIGNIFICANT that you will transfer to the clinical setting?
11.

Notes for future sessions: