





California Simulation Alliance (CSA) Simulation Scenario Template

The California Simulation Alliance (CSA) is comprised of simulation users from all disciplines from throughout the state. Several regional collaboratives have formed totaling 7 as of March, 2011: The Rural North Area Simulation Collaborative (RNASC), the Capital Area Simulation Collaborative (CASC), the Bay Area Simulation Collaborative (BASC), the Central Valley Simulation Collaborative (CVSC, the Southern California Simulation Collaborative (SCSC), the Inland Empire Simulation Collaborative (IESC), and the San Diego Simulation Collaborative (SDSC). The CINHC, a non-profit organization focused on workforce development in healthcare provides leadership for the CSA.

The purpose of the California Simulation Alliance (CSA) is to become a cohesive voice for simulation in healthcare education in the state, to provide for inter-organizational research on simulation, to disseminate information to stakeholders, to create a common language for simulation, and to provide simulation educational courses. The goals of the alliance will include providing a home within the CINHC for best practice identification, information sharing, faculty development, equipment/vendor pricing agreements, scenario development, sharing and partnership models. More information can be found on the CSA website at www.californiasimulationalliance.org

All scenarios have been validated by subject matter experts, pilot tested and approved by the CSA before they were published online. All scenarios are the property of the CINHC/CSA. The writers have agreed to release authorship and waive any and all of their individual intellectual property (I.P.) rights surrounding all scenarios. I.P release forms can be found at <u>www.bayareanrc.org/rsc</u> and click documents. (Please send signed I.P. release forms to KT at kt@cinhc.org)

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SECTION I: SCENARIO OVERVIEW

Scenario Title:	Adult Critical Care-Septic Shock				
Original Scenario Develope r(s):		Lindsay Shank, RN, MS, CNS, CCRN			
Date - original scena	rio	12/31/07			
Validation:		03/10/2008			
Revision Dates:		transferred to new template 7/10 mm; 02/12/13 bld			
Pilot testing:		Approved cok			
QSEN revision:		02/12/13 Barbara Durham MSN, RN, CNE			

Estimated Scenario Time: 15 minutes Debriefing time: 30 minutes

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

Brief Summary of Case:

Eileen Paul is a 54 year old female, diagnosis urospesis, 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/SVO₂ 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:

It is 0415 in your unit and you enter Ms. Paul's room to obtain new hemodynamic/SVO2 measurements and reassess her. Ms. Paul is lying quietly with her eyes closed. She does not arouse until you gently shake her and then she moans. You have an orientee working with you 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)

Cronenwett et al. (2007). Quality and safety education for nurses. *Nursing Outlook, 55*, 3, 122-131. Dellinger, R. P. et al. (2013). Surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock: 2012. *Critical Care Medicine, 41*, 2, 580-637. DOI:10.1097/CCM.0b013e31827e83af

The Surviving Sepsis Campaign Care Bundles. Society of Critical Care Medicine. Retrieved from survivingsepsis.org on March 8, 2013.

Casserly, B., Read, R., and Levy, M.M. (2011). Hemodynamic monitoring in Sepsis. Critical Care Nurse Clinics of North America, 23, 149-169. doi:10.1016/j.ccell.2010.12.009

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								
 Demonstrates situational awareness and acute changes in patient's condition/environm immediate attention. 	_							
2. Accurately anticipate, prioritize, and perform timely interventions required for the unst septic shock.	able patient with							
3. Recognize and initiate request for assistance and further orders appropriate to situation	۱.							
4. Use communication strategies to minimize risk associated with change of status reporti	•							
 Accurately interpret hemodynamic measurements and their effects on the components output/index: heart rate, preload, afterload, contractility. 	of cardiac							
6. Make appropriate decisions regarding medication choices while administering medicati accurately.	ons safely and							
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 identify	fiers.							
2. Complete initial assessment pausing to deal with evolving situation								
3. Recognize signs and symptoms of septic shock, hemodynamic instability and intervene								
4. Identifies and implements appropriate interventions in an optimal sequence per sepsis								
 Report change of status and pertinent data to health care team using standardized com (SBAR) in a timely fashion 	munication tool							
6. Implement interventions (nursing and medical) in an optimal sequence using 2 patient i	dentifiers.							
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	 Ability to obtain pulmonary artery measurements and hemodynamic calculations. 								
Interprofessional team communication in changing status situations		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

Case summary

Eileen Paul is a 54-year-old female, diagnosis urospesis, admitted to Med-Surg 3 days ago for treatment with IV Abx. 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/SVO₂ line with to guide therapeutic interventions.

Α.

B. Key contextual details

It is 0415 in your unit and you enter Ms. Paul's room to obtain new hemodynamic/SVO2 measurements and reassess her. Ms. Paul is lying quietly with her eyes closed. She does not arouse until you gently shake her and then she moans. You have an orientee working with you 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.

	C. Scenario Cast	
Patient/ Client	X High fidelity simulator	
	Mid-level simulator	
	Task trainer	
	Hybrid (Blended simulator)	
	Standardized patient	
Role	Brief Descriptor	Confederate (C) or Learner (L)
	(Optional)	
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 500 ml fluid bolus for patient	Confederate
RCP	Respiratory (if needed)	Confederate
Family	(if needed to address psychosocial aspect)	Confederate

D. Patient/Client Profile								
Last name:	Paul		First name:	Eileen	en			
Gender: Female	Age: 54	Ht: 66 in	Wt: 200 lbs / 90.1 kg	BMI: 32.3 Code Status: Full				
Spiritual Practice:	Catholic	E	Ethnicity: Caucasian	Primary Langua	ge 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
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2. Review of Systems								
CNS	Lethargic, responds to touch only. MAE spontaneously but not to command. Pupils,							
	equal, round, sluggish but reactive to light. Does not speak, but moans to stimulus.							
Cardiovascular	S ₁ S ₂ , no murmurs, bruits, or	r thrills, no JVD or pedal edema, peripheral pulses (radial &						
	pedal) thready, capillary refi	ill prolonged (5 seconds), skin, pale, cool, moist and intact.						
	ECG shows sinus tachycardia	a (rate 132). Patient has PVCs.						
Pulmonary	Respirations even. Lungs: bil	ateral 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 through	out both lungs						
Renal/Hepatic	Foley catl eter with small an	nount of cloudy, yellow urine.						
Gastrointestinal	NPO							
Endocrine	Last BS taken at 0312: 238; p	previous BS 226.						
Heme/Coag	PT 30.7 sc conds, aPTT 55.3 s	seconds, CBC: RBCs WNL, WBCs 15.7, HgB 10.4, HCT 39.3;						
	Platelets: 89K							
Musculoskeletal	Moves spontaneously							
Integument	Skin, pale, cool, moist and in	itact.						
Developmental Hx	wnl							
Psychiatric Hx	None known							
Social Hx								
per day.								
Alternative/ Complem	entary Medicine Hx	None known						

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

Drug	Dose	Route	Frequency
Dopamine-	10	IV	Continuous gtt
Titrate to keep SBP> 100	mcg/kg/min		
Insulin drip	3.5	IV	Continuous gtt
	units/hour		

4. Laboratory, Diagnostic Study Results

Na: 142	K: 4.2	Cl: 101	HCC	03: 20	BUN: 22	Cr: 1.6	
Ca:	Mg: 2.2	Phos:	Gluo	cose: 232	HgA1C:		
Hgb: 10.9	Hct: 39.3	Plt: 89K	WB	C: 15.7	ABO Blood T	ype:	
PT: 30.7	PTT: 55.3	INR: 1.9	Trop	oonin:	BNP:		
Ammonia:	Amylase:	Lipase:	Albu	umin:	Lactate: 4.8		
ABG-pH:	paO2:	paCO2:	HCC)3/BE:	SaO2:		
VDRL:	GBS:	Herpes:		HIV:			
CXR: Bilateral patchy infiltrates		ECG: ST w/	ECG: ST w/ PVCs				
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										
Gene	Gender: Female Attire: hospital gown, (or clothes)									
Alte	rations in appearance	(moulage):							
Patie	nt is orally intubated.									
Vent	settings: Mode: AC Rat	e 16 FiO2:.4	10; PEEP							
Simu	late pale, cool and mois	st skin: Ice	bags to arms, hands, chest and	face for	r 15 minutes prior to scenario.					
Rem	ove prior to scenario sta	arting. Spra	y with glycerin and water imme	diately	prior to beginning of scenario					
х	ID band present,		ID band present,		ID band absent or not					
	accurate informatio	n	inaccurate information		applicable					
	Allergy band present, Allergy band present, X Allergy band absent or not									
	accurate informatio	on 🛛	inaccurate information	PCN	applicable					

2. Initial Vital Signs Monitor display in simulation action room:									
No monitor	Monitor on, but no	X	Monitor on,						
display	data displayed		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	ETC0 ² :	FHR:	SVO2: 52 mmHg			
Lungs:	Left: fine crackles		Right: fine crackle	!S		
Sounds/mechanics						
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 Intrav	enous l	ine se	et u	p							
	Saline lock #1	Site:									IV p	atent (Y/N)
Х	IV #1	Site:	RFA		Fluid type:		lr	nitia	l rate:	X	IV p	atent (Y/N)
Х	Main	1			D5 ½ NS		1	50 r	ml/hr		YES	
	Piggyback	1										
Х	IV #2	Site:	RU		Fluid type:		lr	nitia	l rate:	X	IV p	atent (Y/N)
Х	Main		cord	dis	Dopamine 10 mcg/kg/min 400 mg/250 ml D5W			7ml	/hr		YES	
Х	IV #3	Site:	RUI	РА	Fluid type:		Ir	nitia	l rate:	X	IV p	atent (Y/N)
Х	Main	1	port	t	Insulin 250 units/2		3	.5 n	nl/hr		YES	
					NS (1:1 concentration) 3.5 units/hr							
4.	Initial Non-i	nvasive	moni	itor	s set up							
х	NIBP		x	E	ECG First lead: II			EC	CG Second lead:			
х	Pulse oxime	eter	x	T	Temp monitor/type			Other:				
5.	Initial Hemo	dynami	ic mo	nito	ors set up							
x	A-line Site:	R wrist	x	0	Catheter/tubing Pa	atency (/N) CVP Sit			CVP Site	e: RIJ		PAC Site: RIJ
6.	Other monit	tors/dev	vices									
	Foley cathet insertion kit	er –		nou i0 m		Appea Yellow			urine: cloudy wi	th sea	dimer	nts
	Epidural catheter X Inf			nfusion pump: B channel D5 ½ NS @ 150 ml/hr Dopamine 17ml/hr; Insulin 3.5 ml/hr				Ven	tilator: 16, FiO2 40%, Peep 5			
						CCOmb	o/SV	02 N	Nonitor			
	Fetal Heart r	ate mon	itor/t	000	meter	Internal External						
				F	nvironmont Ecuir	mont		nti				
	Re	comme	nd st		Environment, Equip lardized set ups for					ed e	nviro	nment
1.	Scenario set	ting: (e	xamp	ole:	patient room, ho	me, ED,	lobl	by)				
Int	tensive Care	Unit										

		nt, supplies, r		itors available in adjacent	cor	o storago rooms)		
(11)	Bedpan/		x	Foley catheter kit		Straight cath. kit		Incentive spirometer
x				Feeding pump	x	Pressure bag x2	x	Wall suction
	Nasogastric tube		x	ETT suction catheters	x	Oral suction catheters		Chest tube insertion kit
x	Defibrillat	tor	x	Code Cart/meds	x	12-lead ECG		Chest tube equip
	PCA infus	ion pump		Epidural infusion	x	Central line Insertion Kit with towel roll		Dressing ∆ equipment
x	IV fluid	NS 500 ml ar	nd	IV fluid additives:		pressure lines for		Blood product
	Type:	1000 ml		Primary and seconda	ry	transducing CVP; strips		ABO Type:
				IV tubing; drip chart		for PAP, PAOP that are		# of units:
						close to given		
						parameters		
						Ventilator		

3.	3. Respiratory therapy equipment/devices								
x	Nasal cannula		Face tent		Simple Face Mask	x	Non re-breather mask		
х	BVM/Ambu bag		Nebulizer tx kit		Flowmeters (extra su	ippl	ly)		
x	Ventilator	x	Airway box/tray						

4.	Documentation and	l Or	der Forms				
x	Health Care	x	Med Admin	x	H & P	x	Lab Results
	Provider orders		Record				
x	Progress Notes		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	x Actual medical record binder, constructed per institutional guidelines				Other Describe: lab r CVP, PAOP, PAP & Hemoor values from scenario.		

5.	5. Medications (to be available in sim action room)										
#	Medication	Dosage	Route		#	Medication	Dosage	Route			
1	Dopamine	10 mcg/kg/min	IV		2	Insulin	3.5 ml/hr	IV			
	400mg/250D5W	Rate=17ml/hr				250 units/250ml					
3	Phenylephrine		IV		4	Norepinephrine		IV			
			IV					IV			

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/SVO₂ line to guide therapeutic interventions. She is currently on a Dopamine drip at 10 mcg/kg/hour and Insulin at 3.5 units per hour. The physician's order is to titrate the Dopamine gtt to keep the SBP greater than 100 mmHg.

It is change of shift and you enter Ms. Paul's room to obtain new hemodynamic/SVO2 measurements and reassess her.

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 thready Skin: moist, cool, pale. Lungs: fine crackles bilat, Cue: HOB is slightly ↑to 30° Patient has arterial line and CCOmbo with SVO2. Dopamine and Insulin gtts are infusing per MD order 	Operator O2 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	D ESIRED 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) 	 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

ALL DATA IN THIS SCENARIO IS FICTITIOUS

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGER	RS TO MOVE TO NEXT STATE	
3.	Operator:	Learner Actions:	Debriefing Points:
			 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
		prior to administering	

STATE / PATIENT STATUS	DESIRED ACTIONS & TRIGGERS TO	MOVE TO NEXT STATE	
4. No change	Operator: HR 108EKG: ST RR 16BP 96/62Hemodynamic numbers: (after interventions)SVO2: 68; PAP 26/12; 	 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.
Suggestions to <u>decrease</u> com Suggestions to <u>increase</u> comp This scenario requires knowle orientees and may be adapte Normal Hemodynamic Values	plexity: plexity: edge synthesis and integration of cont d for use with ADN/BSN/entry level N	the actions that are listed or when RESIE cent presented in the Critical Care Trainin Master's students if the content was cover 5-4.5 L/min/m ² , PAP 15-30/8-15 mmHg,	ng Program. It is appropriate for CCU ered.

HEALTH CARE PROVIDER ORDERS

Patient N	lame: Eile	een Paul	Diagnosis:
D00.			Urosepsis, septic shock
DOB:			
Age: 54			
MR#:			
No Kn	own Aller	gies	
Allergi		sitivities: Penicillin	
Date	Time	HEALTH CARE PROV	DER ORDERS AND SIGNATURE
			Code Status, FUU
		Allergies: PENICILLIN	Code Status: FULL
Signature	2	Dr.	

APPENDIX B: Digital images of manikin and/or scena	rio milieu
Insert digital photo here	Insert digital photo here
Insert digital photo here	Insert digital photo here

APPENDIX C: DEBRIEFING GUIDE