

Simulation Design Template

(revised May 2019)

(Clara Clotsworth) Simulation

Date: 11/7/2023

Discipline: Nursing

Expected Simulation Run Time: 30 minutes.

Location: Simulation Room 1

Today's Date: 10/24/2023

File Name: Pulmonary Emboli

Student Level: Advanced

Guided Reflection Time: 60 minutes

Location for Reflection: Conference Room

Brief Description of Client

Name: Clara Clotsworth

Date of Birth: 4/10/1994

Gender: Female **Age:** 29 **Weight:** 60 kg (132 lbs) **Height:** 65 inches

Race: Caucasian **Religion:** Not specified.

Major Support: Clark Clotsworth (Husband) **Support Phone:** 555-202-5055

Allergies: NKA **Immunizations:** Up to date

Attending Provider/Team: Ameila Strongheart MD

Past Medical History: Asthma

History of Present Illness: Left lower extremity pain and swelling.

Social History: Smokes tobacco, 1 pack of cigarettes per day for 10 years. Occasionally drinks 1-2 cocktails socially with friends. Denies recreational drug use.

Primary Medical Diagnosis: DVT

Surgeries/Procedures & Dates: None

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Psychomotor Skills Required of Participants Prior to Simulation

- Advanced head to toe assessment including Lung Sounds and Peripheral Pulse checks.
- Obtain Vital Signs including temperature, pulse, blood pressure, and O2 Saturation.
- Detailed pain assessment including the pain scale “1-10” and descriptive terminology.
- IV Site assessment
- Administration of IV medication; Identification of the 6 rights.
- Calculate IV Heparin bolus and initiate IV Heparin drip as ordered.
- Programming IV pump for medication administration.

Cognitive Activities Required of Participants Prior to Simulation

- Recognition and treatment of adventitious Lung Sounds.
- Identification of fast heart rate, cause and treatment.
- Recognition of acute Pulmonary Emboli (PE), nursing interventions and treatment.
- Recognition of acute Deep Vein Thrombosis (DVT), nursing interventions and treatment.
- Understanding and identifying risk factors for DVT, PE.
- Patient education for DVT and PE.
- Knowledge and nursing considerations of anticoagulants.
- Heparin classification, nursing considerations and possible side effects.
- Patient education for IV Heparin therapy.

Simulation Learning Objectives

General Objectives (Note: The objectives listed below are general in nature and once learners have been exposed to the content, they are expected to maintain competency in these areas. Not every simulation will include all of the objectives listed.)

1. Practice standard precautions.
2. Employ strategies to reduce risk of harm to the patient.
3. Conduct assessments appropriate for care of patient in an organized and systematic manner.
4. Perform priority nursing actions based on assessment and clinical data.
5. Reassess/monitor patient status following nursing interventions.
6. Communicate with patient and family in a manner that illustrates caring, reflects cultural awareness, and addresses psychosocial needs.
7. Communicate appropriately with other health care team members in a timely, organized, patient-specific manner.
8. Make clinical judgments and decisions that are evidence-based.
9. Practice within nursing scope of practice.
10. Demonstrate knowledge of legal and ethical obligations.

Simulation Scenario Objectives (limit to 3 or 4)

1. Implement a focused respiratory and cardiac assessment in a timely manner.
2. Recognize symptoms of pulmonary embolism as a life-threatening complication
3. Provide timely interventions for respiratory distress.
4. Initiate IV Heparin therapy as ordered and educate patient regarding anticoagulation therapy.

For Faculty: References, Evidence-Based Practice Guidelines, Protocols, or Algorithms Used for This Scenario:

- Association, A. L. (n.d.). *Pulmonary embolism symptoms and diagnosis*. American Lung Association. <https://www.lung.org/lung-health-diseases/lung-disease-lookup/pulmonary-embolism/symptoms-diagnosis>
- Barca-Hernando, M., & Jara-Palomares, L. (2023). When should we involve interventional radiology in the management of acute pulmonary embolism? *Breathe*, 19(3), 1–9. <https://doi-org.libproxy.umassd.edu/10.1183/20734735.0085-2023>
- Jiménez, D., Tapson, V., Yusen, R. D., Becattini, C., Moores, L., Barnes, G. D., Monreal, M., Konstantinides, S., & Bickdeli, B. (2023). Revised Paradigm for Acute Pulmonary Embolism Prognostication and Treatment. *American Journal of Respiratory & Critical Care Medicine*, 208(5), 524–527. <https://doi-org.libproxy.umassd.edu/10.1164/rccm.202212-2234VP>
- Keenan, L., Kerr, T., Duane, M., & Van Gundy, K. (2018). Systematic Review of Hormonal Contraception and Risk of Venous Thrombosis. *Linacre Quarterly*, 85(4), 470–477. <https://doi-org.libproxy.umassd.edu/10.1177/0024363918816683>
- Tepper, N. K., Whiteman, M. K., Marchbanks, P. A., James, A. H., & Curtis, K. M. (2016). Progestin-only contraception and thromboembolism: A systematic review. *Contraception*, 94(6), 678–700. <https://doi-org.libproxy.umassd.edu/10.1016/j.contraception.2016.04.014>
- U.S. Department of Health and Human Services. (n.d.). *Pulmonary embolism (PE)*. National Heart Lung and Blood Institute. <https://www.nhlbi.nih.gov/health/pulmonary-embolism>

Setting/Environment

<input checked="" type="checkbox"/> Emergency Room <input type="checkbox"/> Medical-Surgical Unit <input type="checkbox"/> Pediatric Unit <input type="checkbox"/> Maternity Unit <input type="checkbox"/> Behavioral Health Unit	<input type="checkbox"/> ICU <input type="checkbox"/> OR / PACU <input type="checkbox"/> Rehabilitation Unit <input type="checkbox"/> Home <input type="checkbox"/> Outpatient Clinic <input type="checkbox"/> Other:
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Equipment/Supplies (choose all that apply to this simulation)

Simulated Patient/Manikin/s Needed: Yes

Recommended Mode for Simulator: Manual

(i.e. manual, programmed, etc.)

Other Props & Moulage:

<p>Equipment Attached to Manikin/Simulated Patient:</p> <input checked="" type="checkbox"/> ID band <input type="checkbox"/> IV tubing with primary line fluids running at __mL/hr <input type="checkbox"/> Secondary IV line running at __mL/hr <input type="checkbox"/> IVPB with _____ running at mL/hr <input type="checkbox"/> IV pump <input type="checkbox"/> PCA pump <input type="checkbox"/> Foley catheter with __mL output <input type="checkbox"/> O2 <input checked="" type="checkbox"/> Monitor attached <input type="checkbox"/> Other:	<p>Equipment Available in Room:</p> <input type="checkbox"/> Bedpan/urinal <input checked="" type="checkbox"/> O2 delivery device (type) Nasal Cannula <input type="checkbox"/> Foley kit <input type="checkbox"/> Straight catheter kit <input type="checkbox"/> Incentive spirometer <input type="checkbox"/> Fluids <input type="checkbox"/> IV start kit <input checked="" type="checkbox"/> IV tubing <input type="checkbox"/> IVPB tubing <input checked="" type="checkbox"/> IV pump <input type="checkbox"/> Feeding pump <input type="checkbox"/> Crash cart with airway devices and emergency medications <input type="checkbox"/> Defibrillator/pacer <input type="checkbox"/> Suction <input type="checkbox"/> Other:
<p>Other Essential Equipment:</p>	
<p>Medications and Fluids:</p> <input type="checkbox"/> Oral Meds: <input type="checkbox"/> IV Fluids: <input type="checkbox"/> IVPB: <input checked="" type="checkbox"/> IV Push and infusion: Heparin bolus vial (5,000 units/1ml) <input type="checkbox"/> IM or SC: Premix IV Heparin bag 25,000 units/250 ml	

Roles

<input checked="" type="checkbox"/> Nurse 1 <input checked="" type="checkbox"/> Nurse 2 <input type="checkbox"/> Nurse 3 <input checked="" type="checkbox"/> Provider (physician/advanced practice nurse) <input type="checkbox"/> Other healthcare professionals: (pharmacist, respiratory therapist, etc.)	<input type="checkbox"/> Observer(s) <input type="checkbox"/> Recorder(s) <input checked="" type="checkbox"/> Family member #1 <input type="checkbox"/> Family member #2 <input type="checkbox"/> Clergy <input type="checkbox"/> Unlicensed assistive personnel <input type="checkbox"/> Other:
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Guidelines/Information Related to Roles

Learners in the role of nurse should determine which assessments and interventions each will be responsible for, or facilitator can assign nurse 1 and nurse 2 roles with related responsibilities.

Information on behaviors, emotional tone, and what cues are permitted should be clearly communicated for each role. A script may be created from Scenario Progression Outline.

Pre-briefing/Briefing

Prior to report, participants will need pre-briefing/briefing. During this time, faculty/facilitators should establish a safe container for learning, discuss the fiction contract and confidentiality, and orient participants to the environment, roles, time allotment, and objectives.

Faculty will provide a 10-minute review of identifying acute signs and symptoms of a PE, urgency of reporting change in patient's condition to the provider, treatment including heparin dose calculations, oxygen administration, nursing considerations, and the most common risk factors.

Three roles should be assigned to students for this simulation:

1. The medication nurse.
2. The assessment nurse.
3. Supporting family member.

For a comprehensive checklist and information on its development, go to <https://sirc.nln.org/mod/page/view.php?id=843>)

Report Students Will Receive Before Simulation

Time: 07:00

Person providing report: Staff nurse – role played by Simulator Operator.

Situation:

Clara Clotsworth, a 29-year-old female, presents to the Emergency Room 4 hours ago complaining of left lower extremity pain and swelling that has become progressively worse over the past two days.

Background:

She has returned from a 2-week trip to Australia. Her twenty-three-hour flight landed a few days ago and she has been unable to return to work due to pain and swelling in her left lower extremity. She has a past medical history of asthma and has been on birth control pills since she was sixteen years old.

Assessment:

The patient is awake and alert. Her vital signs on arrival were heart rate: 100 beats per minute, respiration: 20-22 breaths per minute, blood pressure: 128/78, oxygen saturation: 96% on room air, and temperature: 37.2C. She complains of pain with ambulation “7”/10 on the pain scale. Her left lower extremity appears red and swollen with no lesions or bruising noted. She voided 450ml clear yellow urine. PRN oxycodone was administered for her pain 1 hour ago.

Recommendation:

The provider saw Clara early this morning labs were drawn and have been resulted. She is due for vital signs, which are every 4 hours and stat heparin orders are in the patient’s chart. The provider would like to be updated with any changes in her condition.


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Scenario Progression Outline

Patient Name: Clara Clotsworth

Date of Birth: 4/10/1994

Timing (approx.)	Manikin/SP Actions	Expected Interventions	May Use the Following Cues
0-10 min Initial Vital Signs RR: 22 HR: 110 BP: 136/82 SpO2: 96% Temp: 37.2C (99F)	Short of breath. “I don’t feel well. My leg has been sore for days” Reports pain level as a 3 when students ask. “I feel like I can’t catch my breath”	Learners should begin by: <ul style="list-style-type: none"> Performing hand hygiene Introducing selves Confirming patient ID using 2 identifiers Obtain Vital Signs. Perform quick head-to-toe assessment Assess pain level. Assess left leg. Review chart including labs. Review stat orders. Assess IV site. Ask patient if they have any allergies. Calculate Heparin bolus and infusion Administer Heparin using the 6 rights of medication administration. 	Role member providing cue: Cue: <i>If students don’t introduce themselves:</i> Spouse may ask: “Who are you?” “Are you taking care of my wife?”
10-15 min Vital Signs Trend to: RR: ➡ 28 HR: ➡ 120 BP: ➡ 140/88 SpO2: ➡ 86% Auscultation Sounds: Lung Sounds with faint wheezing bilaterally	“My chest is hurting!” <i>If student inquires about the pain:</i> Describe it as sharp pain across the chest. “I can’t breath, something is wrong.”	Learners are expected to: <ul style="list-style-type: none"> Perform focused respiratory and cardiac assessment. Position patient in Semi-Fowlers position. Apply oxygen as ordered. Call provider using SBAR. 	Role member providing cue: Cue: Spouse: <i>When breathing deteriorates:</i> Spouse should act anxious and concerned. “Is my wife going to be OK?” “Wha’t’s happening, why can’t she breath?” Provider: When called, the provider will ask student about the symptoms, share their thoughts on the patient’s condition, and send over stat orders.

<p>15-25 min</p> <p>When oxygen is applied: SpO2:  94%</p>	<p>Patient continues to complain of difficulty breathing and is anxious.</p>	<p>Learners are expected to:</p> <ul style="list-style-type: none"> • Prioritize new stat orders to attach ECG, obtain 12 lead EKG, obtain new lab specimens, transport patient for CTA scan. • Explain interventions to patient and family. • Apply ECG leads. • Obtain a 12-lead EKG stat. • Draw labs (ABG, CK, Troponin) and send to lab. • Call CT for a stat CTA (rule out PE) 	<p>Role member providing cue: Cue:</p> <p>Lab Technician: Shortly after blood for labs are drawn, lab technician comes in and provides the results if the students are unable to bring them up via EHR.</p>
<p>25-30 min</p> <p>Vital Signs no changes.</p>	<p>Patient anxious and asks questions:</p> <p>“What’s happening to me?”</p> <p>“What is that medicine for?”</p> <p>“Why can’t I breathe?”</p> <p>“How long will I be in the hospital for?”</p>	<p>Learners are expected to:</p> <ul style="list-style-type: none"> • Evaluate lab results. • Reassess Vital Signs • Call provider to report labs. • Comfort patient. • Communicate effectively with patient and family about condition. 	<p>Role member providing cue: Cue:</p> <p>Provider: Provider can phone room if not called.</p> <p>Spouse: <i>If students don’t explain the situation to spouse:</i></p> <p>Spouse may ask questions like:</p> <p>“What’s going on, what are you doing?”</p> <p>“What is that medication you are giving her”</p> <p>“Is my wife going to be OK?” “What’s causing her to be so short of breath?”</p> <p>“Will she need to stay in the hospital overnight?”</p>

Debriefing/Guided Reflection

Note to Faculty

We recognize that faculty will implement the materials we have provided in many different ways and venues. Some may use them exactly as written and others will adapt and modify extensively. Some may choose to implement materials and initiate relevant discussions around this content in the classroom or clinical setting in addition to providing a simulation experience. We have designed this scenario to provide an enriching experiential learning encounter that will allow learners to accomplish the listed objectives and spark rich discussion during debriefing. There are a few main themes that we hope learners will bring up during debriefing, but if they do not, we encourage you to introduce them.

Themes for this scenario:

- This patient's pulmonary emboli (PE) is most likely related to the patient's Deep Vein Thrombosis (DVT) that developed from immobility while on birth control.
- PE is a life-threatening medical emergency. Signs and symptoms are an abrupt onset of dyspnea and chest pain, hypoxemia, tachycardia, tachypnea. This condition may progress to shock, pulmonary infarct, or pulmonary hypertension.
- Immediate treatment for DVT and/or PE is initiation of anticoagulation therapy. Other treatments include Thrombolysis, Thrombectomy, and/or insertion of an IVC filter.

We do not expect you to introduce all of the questions listed below. The questions are presented only to suggest topics that may inspire the learning conversation. Learner actions and responses observed by the debriefer should be specifically addressed using a theory-based debriefing methodology (e.g., Debriefing with Good Judgment, Debriefing for Meaningful Learning, PEARLS). Remember to also identify important concepts or curricular threads that are specific to your program.

1. How did you feel throughout the simulation experience?
2. Give a brief summary of this patient and what happened in the simulation.
3. What were the main problems that you identified?
4. Discuss the knowledge guiding your thinking surrounding these main problems.
5. What were the key assessment and interventions for this patient?
6. Discuss how you identified these key assessments and interventions.
7. Discuss the information resources you used to assess this patient. How did this guide your care planning?
8. Discuss the clinical manifestations evidenced during your assessment. How would you explain these manifestations?
9. Explain the nursing management considerations for this patient. Discuss the knowledge guiding your thinking.
10. What information and information management tools did you use to monitor this patient's outcomes? Explain your thinking.
11. How did you communicate with the patient?
12. What specific issues would you want to take into consideration to provide for this patient's unique care needs?
13. Discuss the safety issues you considered when implementing care for this patient.

14. What measures did you implement to ensure safe patient care?
 15. What other members of the care team should you consider important to achieving good care outcomes?
 16. How would you assess the quality of care provided?
 17. What could you do improve the quality of care for this patient?
 18. If you were able to do this again, how would you handle the situation differently?
 19. What did you learn from this experience?
 20. How will you apply what you learned today to your clinical practice?
 21. Is there anything else you would like to discuss?
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