Date : December 3-4 2008 **File Name: PE Simulation**

Simulation: ***Femur Fracture with Pulmonary Embolism***

Discipline: Critical Care **Student Level: 8th Semester**
Expected Simulation Run Time: 15 **Guided Reflection Time: 15**
Location: Simulation Lab **Location for Reflection: Bedside**

Admission Date: Today's Date:
Brief Description of Patient:
Name: Mark Gender: M Age: 25 Race: Caus
Weight: _158(72)__kg Height: _170__cm
Religion: Methodist Major Support: Parents
Phone: disconnected

Allergies: NKDA
Immunizations: Unknown
Attending Physician/Team: Dr. Anthony Turner

Past Medical History:
Appendix out at age 14

History of Present illness:
Patient had auto accident 48 hours ago. He has contusion to left parietal area. Several abrasions and lacerations to arms and legs (minor).

Social History:

Primary Medical Diagnosis: Femur Fracture
Surgeries/Procedures & Dates:
Surgery following accident to repair femur: open reduction and external fixation, internal pins and external immobilization

Psychomotor Skills Required prior to simulation:

Physical Assessment
IV push
Cardiac monitoring
ART line monitoring

Cognitive Activities Required prior to Simulation: i.e. independent reading (R), video review (V), computer simulations (CS), lecture (L)

Students should review following:

http://www.videojug.com/interview/pulmonary-embolism-2#what-is-a-pulmonary-embolism

http://www.youtube.com/watch?v=NnhK_FK4WDQ

Guidelines for care at AAFP.org

http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=7008&nbr=4217

Simulation Learning Objectives:

1. Recognize deterioration/changes in client physical assessments.
2. Provide appropriate interventions for respiratory support.
3. Calculate emergency medications based upon weight including pain control.
4. Communicate with interdisciplinary health care team, patient and family regarding changing condition.

7.

Fidelity (choose all that apply to this simulation)

Setting/Environment

- ***ER***
- **Med-Surg**
- **Peds**
- **XXX ICU**
- **OR / PACU**
- **Women's Center**
- **Behavioral Health**
- **Home Health**
- **Pre-Hospital**
- **Other _____**

Simulator Manikin/s Needed:

Sim Man

Props:

Mannikin
Immobilization Devices for Femur Fx
Cardiac Monitoring
Arterial Line
O2 Sat Monitor
IV NS at 30cc/min.
DVT risk assessment sheet

Equipment attached to manikin:

- **IV tubing with primary line _____ fluids running at _____ cc/hr**
- **Secondary IV line __ running at _cc/hr**
- **XX IV pump**
- **XX Foley catheter _____cc output**
- **XX PCA pump running**
- **IVPB with ___ running at ___ cc/hr**
- **02 _____**
  XX Monitor attached
- **XX ID band _____**
- **Other_____**

Equipment available in room

- **Bedpan/Urinal**
- **Foley kit**
- **Straight Catheter Kit**
- **Incentive Spirometer**
- **XX Fluids – Normal Saline**
- **IV start kit**
- **IV tubing**

Medications and Fluids

- **IV Fluids:**

NS at 30 cc/min

- **Oral Meds:**

- **IVPB:**

ANCEF 1 GM q 6hr

- **IV Push:**

Heparin 80 units per kg, 18 units per kg per hour
MS 2 – 10 mg IVP q 2 hours prn pain.

- **IM or SC:**

Lovenox 30 mg sq

Diagnostics Available

- **Labs**
- **X-rays (Images)**
- **12-Lead EKG**
- **Other_____**

Documentation Forms

- **Physician Orders**
- **XX Admit Orders**
- **Flow sheet**
- **xx Medication Administration Record**
- **Kardex**
- **XX Graphic Record (Critical Care Flow Sheet)**
- **Shift Assessment**
- **Triage Forms**
- **Code Record**
- **Anesthesia / PACU Record**
- **Standing (Protocol) Orders**
- **Transfer Orders**
- **Other__DVT prophylactic Assessment Form_____**
- **Standing Dysrhythmia Orders**

Other Props

Recommended Mode for simulation, i.e.

- **IVPB Tubing**
- **XX IV Pump**
- **Feeding Pump**
- **Pressure Bag**
- **XX 02 delivery devices type**
- **Cannula and nonrebreather mask**
- **Crash cart with airway devices and emergency medications**
- **Defibrillator/Pacer**
- **Suction**
- **Other__**Cardiac Monitor & Art Line_____

manual, programmed etc.

High fidelity manikin capable of cardiac monitoring. Need operator who can change vital signs.

Roles / Guidelines for Roles

- **XX Primary Nurse**
- **XX Secondary Nurse**
- **Clinical Instructor**
- XX **Family Member #1 -** Mother
- **Family Member #2**
- **Observer/s**
- **Via phone Physician / Advanced Practice Nurse**
- **XX Respiratory Therapy**
- **Anesthesia**
- **Pharmacy**
- **Lab**
- **Imaging**
- **Social Services**
- **Clergy**
- **Unlicensed Assistive Personnel**
- **Code Team**
- **Other_____**

Important information related to roles:

Critical Lab Values:

Physician Orders:

1. CXR
2. Blood gases
3. Heparin bolus 80 units per kg, then 18 units per kg per hour
4. Increase IV fluids to 200/hour.
5. Oxygen 15 liter high flow 100 % nonrebreather mask
6. VQ scan, followed by Ativase 100 mg if positive for PE
7. DVT prophylaxis risk assessment

Student Information Needed Prior to Scenario:

- **Has been oriented to simulator**
- **Understands guidelines /expectations for scenario**
- **Has accomplished all pre-simulation requirements**
- **All participants understand their assigned roles**
- **Has been given time frame expectations**

Report students will receive before simulation:

Time: Taped report on patient from night nurse

References, Evidence-Based Practice Guidelines, Protocols, or Algorithms used for this scenario: (site source, author, year, and page)

<u>High Acuity Nursing</u> Text – Chapter _____ Pages _____
Medical – Surgical Text – Chapter _____ Pages _____

NCLEX Test Plan Category (choose all areas included in the simulation)

Safe, Effective Care Environment

Management of Care

- Advanced Directives
- Advocacy
- Case Management
- Legal rights and responsibilities
- Staff Education
- Clients Rights
- Confidentiality
- Establishing Priorities
- Performance Improvement
- Resource management
- Collaboration
- Delegation
- Informed Consent
- Referrals
- Supervision

Safety and Infection Control

- Accident Prevention
- Emergency Response Plan
- Injury Prevention
- Reporting of Incident Event
- Standard / Transmission Based Precautions
- Disaster Planning
- Handling Hazardous and Infectious Materials
- Medical and Surgical Asepsis
- Safe Use of Equipment
- Error Prevention
- Security Plan
- Restraints

Health Promotion and Maintenance

- Aging Process
- Developmental Stages
- Expected Body Image Changes
- Health and Wellness
- High Risk Behaviors
- Lifestyle choices
- Ante/Intra/Postpartum and Newborn Care
- Disease Prevention
- Family Systems
- Health Promotion
- Human Sexuality
- Self Care
- Family Planning
- Growth and Develop
- Health Screening
- Immunizations
- Physical Assessment

Psychosocial Integrity

- Abuse / Neglect
- Chemical Dependency
- End of Life
- Mental Health Concepts
- Religious and Spiritual Influences
- Situational Role Changes
- Therapeutic Environment
- Behavioral Interventions
- Coping Mechanisms
- Family Dynamics
- Psychopathology
- Sensory / Perceptual Alterations
- Therapeutic Communications
- Unexpected Body Image Changes
- Crisis Intervention
- Cultural Diversity
- Grief and Loss
- Stress Management
- Support Systems

Physiologic Integrity

Basic Care and Comfort

- Alternative and Complimentary Therapies
- Elimination
- Non-Pharmacologic Comfort
- Nutrition and Oral Hydration
- Mobility / Immobility
- Palliative / Comfort Care
- Assistive Devices
- Rest and Sleep
- Personal Hygiene

Pharmacological and Parenteral Therapies

- Adverse Effects/Contraindications and Side Effects
- Blood and Blood Products
- Expected Outcomes / Effects
- Pharmacologic Interactions
- Central Venous Access Device
- Medication Administration
- Pharmacologic Pain Management
- Dosage Calculation
- Intravenous Therapy
- Parenteral Fluids
- TPN

Reduction of Risk Potential

- Diagnostic Tests
- Monitoring Conscious Sedation
- Potential for Complications from Surgical Procedures and Health Alterations
- Laboratory Values
- Potential for Alteration in Body Systems
- Vital Signs

- System Specific Assessment — Therapeutic Procedures

Physiologic Adaptation

- Alteration in Body Systems — Fluid and Electrolyte Imbalances — Hemodynamics
- Illness Management — Infectious Diseases — Medical Emergencies
- Unexpected Response to Therapies — Radiation Therapy — Pathophysiology

Scenario Progression Outline

Timing (approximate)	**Manikin Actions**	**Expected Interventions**	**May use the following Cues:**
1 minute	**Manikin – pulse 84, oxygen sat 99, respirations 12, NSR at 88**	**Student will initiate a head – to – toe assessment of a patient who is post MVA with immobilized femur fracture**	**Role member providing cue:** Manikin - monitors **Cue:** Patient will develop sudden onset SOA, increased respirations & pulse
2 minutes	**Manikin – increase pulse to 110, oxygen sat to 85, respirations to 28, rhythm sinus tachycardia, coughing.**	**Student needs to assess for signs and symptoms of pulmonary embolism, reposition patient for breathing ease, lungs sounds and heart sounds, increase oxygen**	**Role member providing cue:** Manikin **Cue:** "My chest is killing me. I can't breathe."
2 minutes	**Manikin – increase pulse to 130, oxygen sat to 80, respirations increase to 32. Rhythm for cardiac monitor is sinus tachycardia.**	**Student needs to request help from 2nd student and respiratory therapy**	**Role member providing cue:** 2nd student **Cue:** "Can I help?" "Do we need respiratory therapy?"
2 minutes		**Delegate tasks for continued assessment, call assessments to physician**	**Role member providing cue:** 2nd nurse (only if needed) **Cue:** "Do we need to call the physician?"
3 minutes	**Manikin – Sats increase, resp decreases IF student provides respiratory support per mask and other interventions.**	**Prioritize physician orders and implement**	**Role member providing cue:** 2nd student **Cue:** "Which of these should we do first?"

3 minutes	**Patient's mother enters room**	**Student needs to prioritize for continued care and deal with mother's questions.**	**Role member providing cue:** Mother **Cue:** "What's going on with my son?"

Debriefing / Guided Reflection Questions for this Simulation:

(Remember to identify important concepts or curricular threads that are specific to your program)

1. How did you feel about completing this simulation experience?

2. What were your primary concerns in this scenario?

3. Did you miss anything in getting report on this patient?

4. Did you have sufficient knowledge/skills to manage this situation?

5. What were your primary nursing diagnoses in this scenario? What nursing interventions did you use, what outcomes (NOC) did you measure? Where is your patient in terms of these outcomes now?

6. What did you do well in this scenario?

7. If you were able to do this again, what would you do differently?

Complexity – Simple to Complex

Suggestions for changing the complexity of this scenario to adapt to different levels of learners:

Review complications for fractures
Glasgow Coma Scale
Neurological and ICU Assessment Flow Sheet

Key Elements

2. Student introduced themselves to patient.
3. Student recognizes SOA, coughing, anxiety.
4. Student takes action
    1. Turn up oxygen
    2. Elevate HOB
    3. Listen to lung sounds and heart sounds
    4. Assessment of pain: location, severity, & other parameters
    5. Student continuously reassessing patient, student calls for assistance
    6. Student recognizes need to call Respiratory Therapy
5. Oxygen drops to 80, decreasing LOC, pulse 130
6. One student calls physician with update, other student remains with patient
7. Physician orders: STAT
    1. Heparin bolus – 80 units per kilogram, then 18 units per kg per hour
    2. CXR

3. Blood gases
4. Increase IV fluids to 200/hour.
5. Oxygen 15 liter high flow 100 % nonrebreather mask
6. VQ scan, followed by 100 mg Ativase if VQ positive for PE
7. DVT prophylaxis risk assessment
8. MS 2 – 10 mg IVP q 2 hours prn pain

8. Student has to prioritize activities:
    1. ABCs
    2. Blood gases
    3. IV fluids
    4. Heparin bolus
    5. CXR
    6. VQ Scan
    7. DVT reassessment
9. Patient's mother enters room
    1. One of student nurses has to explain client condition to mother

Student Information Page

Objectives	1. Recognize deterioration/changes in client physical assessments. 2. Provide appropriate interventions for respiratory support. 3. Calculate emergency medications based upon weight including pain control. 4. Communicate with interdisciplinary health care team, patient and family regarding changing condition**.**
Resources	Read text: High Acuity Nursing & Med-Surg Text – Care of Femur Fracture. Pages: _____ http://www.videojug.com/interview/pulmonary-embolism-2#what-is-a-pulmonary-embolism http://www.youtube.com/watch?v=NnhK_FK4WDQ http://www.guideline.gov/summary/summary.aspx?ss=15&doc_id=7008&nbr=4217
Scenario	You will be caring for a 25-year old patient who is 2 days post-operative for an immobilized femur fracture. You will be given report and have a chart to read for 10 minutes prior to entering simulation. Patient is on cardiac monitoring, needs basic cares, is alert & oriented.
Expectations	Student should come to simulation prepared as they would a clinical patient. Readings should be completed prior to arrival. Student will be expected to provide care for a patient in SICU who has an immobilized femur fracture. Student will receive a taped report from the night nurse. Student will be expected to give ordered medications. Student will provide all needed supportive care for this patient and provide appropriate nursing interventions for this surgical procedure. Student will perform all tasks on patients – do not "pretend" unless no other method is available.
Follow-up	Student will complete simulation debriefing paperwork and reflection paper following simulation experience.