Student Name ___Kirsten Taylor_____

ATI Real Life Scenario___MI_____

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*Complete and submit to the corresponding dropbox by 1600 on the assigned clinical day.

To Be Completed Before the Simulation

** Blue boxes should be completed using textbook information. What do you expect to find? This information should be collected before you start the ATI simulation.

Medical Diagnosis/ Disease: _____MI_____

NCLEX IV (8): Physiological Integrity/Physiological Adaptation

NCLEX IV (7): Reduction of Risk

Anatomy and Physiology Normal Structures	Pathophysiology of Disease	Anticipated Diagnostics Labs
Three Distinct Layers	**Causes:** plaque rupture, new coronary artery thrombosis, coronary artery spasm	Serum cardiac biomarkers- Cardiac specific troponin T, Cardiac Specific troponin 1
1. Endocardium • Thin innermost layer		Creatine kinase
2. Myocardium • Muscular layer		Myoglobin
3. Epicardium • Outermost layer		

Anatomy and Physiology Normal Structures

Three Distinct Layers
1. Endocardium • Thin innermost layer
2. Myocardium • Muscular layer
3. Epicardium • Outermost layer

The heart is covered by a fibrotic sac: The Pericardium
Two layers: 1. Visceral Layer • Thin inner layer
2. Parietal Layer • Tough fibrous outer layer
Pericardial fluid (10-15ml) lies between these layers to lubricate the layers and prevent friction as the heart contracts.

Four Chambers
Right Atrium- Thin wall, low pressure
Receives blood from vena cava
Outflow through Tricuspid valve
Right Ventricle- Thin wall, low pressure
Receives blood from right atrium
Outflow through Pulmonic valve to Pulmonary artery
Left Atrium- Thicker wall, medium pressure
Receives blood from Pulmonary veins
Outflow through Mitral Valve
Left Ventricle -Thick wall, high pressure
Receives blood from left atrium
Outflow through Aortic valve to Aorta

Blood Vessels:
• Arteries-thick walls, elastic tissue
• Arterioles- little elastic tissue, more smooth muscle
• Capillaries- thin walls of endothelial
• Venules- small vessels that collect blood from capillary beds
• Veins- large diameter, thin wall

FUNCTIONS
Pumping oxygenated blood to the other body parts.
Pumping hormones and other vital substances to different parts of the body.

Pathophysiology of Disease

Causes: plaque rupture, new coronary artery thrombosis, coronary artery spasm

Abrupt stoppage of blood flow through a coronary artery that causes irreversible myocardial cell death (necrosis). 80%-90% secondary to thrombus, with most MIs occurring in the setting of preexisting CAD.

STEMI vs NSTEMI

Ischemia starts in subendocardium (NSTEMI) vs STEMI (transmural)

-Transmural = involves entire thickness of myocardium

-Necrosis of entire thickness of myocardium takes 4 to 6 hours

STEMI: Caused by occlusive thrombus

ST elevation in leads facing the area of infarction \EMERGENCY! Need to reopen the artery within 90 minutes of presentation. This is done via a PCI as first-line treatment. You can also use Thrombolytics/Fibrinolytics (if PCI is not available).

Anticipated Diagnostics
Labs

Serum cardiac biomarkers- Cardiac specific troponin T, Cardiac Specific troponin 1
Creatine kinase
Myoglobin

Additional Diagnostics

ECG
Cardiac Cath
ECHO

Receiving deoxygenated blood and carrying metabolic waste products from the body and pumping it to the lungs for oxygenation.
Maintaining blood pressure

The heart is made up of four chambers: two upper chambers known as the left atrium and right atrium and two lower chambers called the left and right ventricles.

Deoxygenated blood returns to the right side of the heart via the venous circulation. It is pumped into the right ventricle and then to the lungs where carbon dioxide is released and oxygen is absorbed.

BLOOD FLOW
Blood flow through the heart so it's going to enter through the superior and inferior vena cava and it's going to go into the right atrium then it's going to go through the tricuspid valve into the right ventricle and then it's going to pass through the pulmonary valve and go into the pulmonary artery to take it to the lungs or it's going to get oxygenated and then it's going to come back to the pulmonary vein into the left atrium through the mitral valve into the left ventricle then from the left ventricle it's going to go through the aortic valve into the body

Heart Conduction System (Cardiac Conduction)
The heart conduction system is the network of nodes, cells and signals that controls your heartbeat. Each time your heart beats, electrical signals travel through your heart. ... The expansion and contraction control blood flow through your heart and body.
The cardiac conduction system comprises the following structures, in order, the SA node, the AV node, the bundle of His, the bundle branches, and the Purkinje fibers.

NSTEMI: Nonocclusive thrombus, No ST elevation, Need cath within 12-72 hours, Thrombolytic therapy not indicated

Time is Tissue! Hypoxia occurs within 10 seconds to the heart muscle in a MI and can withstand for 20 minutes before cell death. Most MIs will affect the left ventricle. After a few minutes, anaerobic metabolism produces lactic acid. During a MI, nerves become stimulated and will send pain messages through the thoracic. Lastly, the degree of collateral circulation influences the severity of MI.

NCLEX II (3): Health Promotion and Maintenance

NCLEX IV (7): Reduction of Risk

Contributing Risk Factors	Signs and Symptom	Possible Therapeutic Procedures	Prevention of Complications
Hx of smoking	Pain- Quality: described as heaviness,	Non-surgical MONA	

Women= higher mortality rate CAD Endocarditis Past HX of MI Diabetes Obesity HTN Non-active High LDL	constriction, tightness, burning, pressure, or crushing.Location: substernal, or epigastric areas; pain may radiate to the neck, jaw, and arms. Duration: usually for 20 min or longer. Women have a higher mortality rate, vague symptoms, back pain/jaw pain, and loss of appetite. The elderly may have changes in mental status, shortness of breath, pulmonary edema, and dizziness. SNS Stimulation - release of catecholamines = norepinephrine/epin ephrine from ischemic cells into circulation which leads to diaphoresis, vasoconstriction of peripheral blood vessels, skin: ashen, clammy, and cool to touch Cardiovascular- Initially ↑ HR and BP, then ↓ BP (secondary to ↓ in CO), crackles, jugular venous distention, abnormal heart sounds- S3 or S4, new murmur, nausea and vomiting-reflex stimulation of the vomiting center by severe pain, vasovagal reflex	**Surgical** Cardiac Cath CABG Intra Aortic balloon pump Ventricular assist device Midcab	(What are some potential complications associated with this disease process) Dysrhythmias Heart Failure Cardiogenic shock Papillary muscle dysfunction or rupture Left ventricular aneurysm ventricular septal rupture and left ventricular free wall rupture Pericarditis Dressler Syndrome Acute pulmonary edema Thromboemboli

	Fever- Up to 100.4° F (38° C) in first 24 hours, may last for 4-5 days, a systemic inflammatory process caused by myocardial cell death		

NCLEX IV *(6)*: Pharmacological and Parenteral Therapies

Anticipated Medication Management

MONA- Morphine, Oxygen, Nitroglycerin, and aspirin

Anticoagulant, Antianginal, Narcotic, Beta blocker, Statin, and ACE inhibitor

NCLEX IV *(5)*: Basic Care and Comfort

Non-Pharmacologic Care Measures

Dash Diet
Compliance with medications
Therapeutic communication
Allow rest

NCLEX III *(4)*: Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

Fear of death
Lack of knowledge
Unfamiliar environment
Role performance
Anxiety
Financial stressors

Client/Family Education

List 3 potential teaching topics/areas
- **Carry aspirin/ nitro with you at all times**
- **Quit smoking if a smoker**
- **Cardiac heart-healthy diet**

NCLEX I *(1)*: Safe and Effective Care Environment

Multidisciplinary Team Involvement
(Which other disciplines do you expect to share in the care of this patient)

Cath Lab, Nurse, CNA, Pharmacy, Cardiology, Chaplin, Radiologist, Hospitalist,

Anticipated Patient Problems, Goals, & Interventions Based on Medical Diagnosis

** This worksheet should be completed before you begin the ATI simulation.

Problem #1: Acute pain

Patient Goals:

1. Pt ATI will report a 0/10 pain during my time of care.

2. Pt ATI will have a HR between 60-100, RR of 12-20, O2 saturation greater than 95%, and a BP of 110-130/60-80 during my time of care.

Assessments:

> Assess the quality, location, severity, duration, onset, and relieving factors of pain q1hr,
>
> Assess any prior treatment for pain q2hrs, Assess HR and BP q4hrs, Assess O2
> saturation q4hrs, Assess the need for pain medication q1hr.

Interventions (In priority order):

1. Administer ordered morphine IV and repeat if needed PRN for chest pain.
2. Appy 2 liters nasal cannula and increase PRN for chest pain.
3. Administer Nitroglycerin and repeat PRN for chest pain.
4. Administer aspirin PRN for chest pain.
5. Maintain a quiet comfortable and calm environment to help decrease any stress that may cause pain qshift.
6. Educate about reporting any chest pain to the care team immediately q4hrs.

Problem #2: Decreased Cardiac Output

Patient Goals:

   1. Pt ATI will show hemodynamic stability by having a normal BP of 110-130/60-80, a normal cardiac output of 4-8 L/min, and a HR between 60-100 bpm during my time of care.

   2. Pt ATI will have an adequate urinary output of 30 ml/hour during my time of care.

Assessments:

> Assess UO q4hrs, Assess BP and HR q4hrs, Assess heart sounds q4hrs, Assess skin
>
> temperature and color q4hrs, Assess breath sounds q4hrs, Assess pulses q4hrs, Asses
> heart rhythm q4hrs, Asses skin turgor q4hrs

Interventions (In priority order):

1. Administer Beta Blockers as prescribed during my time of care.
2. Administer Inotropic medications as prescribed during my time of care.
3. Administer Amiodarone as prescribed during my time of care.
4. Administer Diuretics prescribed during my time of care.
5. Administer Calcium Channel Blockers as prescribed during my time of care.
6. Administer ACEs or ARBs as prescribed during my time of care.

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At this time, complete assigned ATI Real Life Simulation

Actual Patient Problems & Goals

** The following should be completed after the ATI simulation.

Problem #1: ____Acute pain: Chest_____

Patient Goals:

      1. Pt ATI will report a 0/10 pain during my time of care._____

                                                                       Met
                                                                    Unmet

2. Pt ATI will verbalize understanding of reporting pain right away and always carrying nitroglycerin with him at all times and understand the proper way to take nitroglycerin and to call EMS if the chest pain is not responding to the nitro. _____   **Met**
                                                                        Unmet

Problem #2: _____Decreased Cardiac Output _____

Patient Goals:

      1. Pt ATI will show hemodynamic stability by having a normal BP of 110-130/60-80, a normal Sp02 > 95%, and a HR between 60-100 bpm during my time of care.   **Met**
                                                                          Unmet

      2. Pt ATI will verbalize understanding of the medication regimen including the purpose of why there is an ACE inhibitor ordered and the purpose of an antiplatelet.   _____   **Met**
                                                                           Unmet

Student Name ___Kirsten Taylor_____
ATI Real Life Scenario___MI_____

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SOAP Notes Based on Priority Problems

Priority Patient Problem #1: _____Acute Pain _____

Subjective: *This section explains the client symptoms. Include a narrative of the patient's complaints/concerns and/or information obtained from secondary sources.*	**Chief Complaint:** Chest tightness that is not relieved with nitroglycerin tablets **PMH:** HTN, CAD, Quit smoking 1 month ago and occasionally chews tobacco **Allergies:** PCN, Peanuts, Sulfa **Current Medications:** Nitroglycerin SL tablets, Lisinopril
Objective: *This section is your clinical observations. Include, pertinent vital signs, pertinent labs and diagnostics <u>related to priority problem.</u>*	**Vital Signs:** 1715- Pulse 96, RR 28, BP 110/82, SPO2 92% 1718- Pulse 98, RR 24, BP 104/78, SPO2 94% 1720- Pulse 104, RR 24, BP 100/68, SPo2 95% 1722-Pulse 104, RR 26, BP 96/56, SPo2 94% 4L NC 1725-Pulse 106, RR 24, BP 100/66, SPo2 96%4L NC 1730-Pulse 102, RR 22, BP 98/60, SPo2 96%4L NC 1735-Pulse 104, RR 22, BP 102/68, SPo2 97%4L NC 1740-Pulse 102, RR 24, BP 100/56, SPo2 95%4L NC 1745-Pulse 100, RR 22, BP 102/58, SPo2 96%4L NC **Labs:** Troponin T 0.2 ng/mL High 1745 Troponin I 0.06 ng/mL High 1745 Troponin T 0.4 ng/mL High 2145 Troponin I 0.07 ng/mL High 2145 **Diagnostics:** (1715, 1718, 1720) EKG- Prolonged P wave, PVC's, ST Elevation Chest X-ray- shows the aorta and aortic arch has calcification.

Assessment: *Focused assessment on your priority problem.*	Chest pain continuous 8/10 that is sharp and crushing that began at home and was not resolved with nitroglycerin. 1715-1745 Skin- Ashen ECG showed Prolonged P wave, PVCs, ST Elevation. Chest X-ray- shows the aorta and aortic arch have calcifications present.
Plan ***Based on priority problem only** *Include what your plan is for the client. What treatments or medications are needed. You can include procedures, consults, labs/diagnostics, etc. What nursing interventions are being performed?*	**Plan:** The patient is going to the cath lab to get a percutaneous transluminal coronary angioplasty with stent placement in the left anterior descending coronary artery. Transferring to the ICU after cath for monitoring through a central venous catheter and arterial line. Continue monitoring for chest pain and implement MONA if needed. Keep the client supine for 2 hours following the cath and monitor the insertion site for any bleeding, infection, or hematoma. ORDERS: Oxygen support through NC to keep o2 sat above 96%, continuous telemetry order, 12 Lead ECG. **Teaching/Resources:** -Educate to always carry SL nitroglycerin for the first signs of CP and stop any activity with the first signs of CP. -Educate to continue medication regimen outside of the hospital. -Educate to notify the provider of any signs of chest pain.

Priority Patient Problem #2: _____Decreased cardiac output _____

Subjective: *This section explains the client symptoms. Include a narrative of the patient's complaints/concerns and/or information obtained from secondary sources.*	**Chief Complaint:** Can not catch breath, dyspnea, wheezing, and coughing.
Objective: *This section is your clinical observations. Include vital signs, pertinent labs and diagnostics related to priority problem.*	**Vital Signs:** 1722-Pulse 104, RR 26, BP 96/56, SPo2 94% 4L NC 1725-Pulse 106, RR 24, BP 100/66, SPo2 96%4L NC 1730-Pulse 102, RR 22, BP 98/60, SPo2 96%4L NC 1735-Pulse 104, RR 22, BP 102/68, SPo2 97%4L NC 2115-Pulse 112, RR 32, BP A-line 148/94, SPo2 94%2L NC CVP- 10 2120-Pulse 116, RR 32, BP A-line 155/98, SPo2 87% 15L Non rebreather mask CVP- 10 2125-Pulse 118, RR 32, BP A-line 156/96, SPo2 88% 15L Non rebreather mask CVP- 8 2130-Pulse 118, RR 36, BP A-line 158/98, SPo2 89% 15L Non rebreather mask CVP- 8 2135-Pulse 124, RR 36, BP A-line 162/98, SPo2 92% 15L Non rebreather mask CVP- 9 2140-Pulse 120, RR 32, BP A-line 148/92, SPo2 94% 15L Non rebreather mask CVP- 10 2145-Pulse 112, RR 28, BP A-line 134/82, SPo2 98% 15L Non rebreather mask CVP- 9 2150-Pulse 110, RR 24, BP A-line 132/80, SPo2 99% 15L Non rebreather mask CVP- 9 2155-Pulse 98, RR 18, BP A-line 128/78, SPo2 100% 15L Non rebreather mask CVP- 10 2200-Pulse 88, RR 14, BP A-line 108/74, SPo2 100% 15L Non rebreather mask CVP- 10 **Labs:** Troponin T 0.2 ng/mL High 1745 Troponin I 0.06 ng/mL High 1745

	Troponin T 0.4 ng/mL High 2145 Troponin I 0.07 ng/mL High 2145 Potassium 1745 3.6 mEq/L 2230 3.2 mEq/L **Diagnostics:** (1715, 1718, 1720) EKG- Prolonged P wave, PVC's, ST Elevation
Assessment: *Focused assessment on your priority problem.*	Signs of dyspnea due to wheezing Can't catch breath Showing signs of stridor O2 87% on 15 L non-rebreather Nails beds ashen Showing signs of distress Coughing and nasal congestion Pt distressed and anxious. Urinary output has dropped trending down 200 ml/hr to 48 ml/hr Showing signs of cardiogenic shock
Plan ***Based on priority problem only** *Include what your plan is for the client. What treatments or medications are needed. You can include procedures, consults, labs/diagnostics, etc. What nursing interventions are being performed?*	**Plan:** The patient was in the ICU for monitoring after Cardiac Cath with continuous telemetry. Prescribed medications were administered. Bleeding at the puncture site, held pressure to the right groin site. Began to have decreased SpO2 levels. Administered 15 L of O2 via Non-rebreather. BP levels were low so we began a dobutamine drip with a NS infusion to help increase the contractility of the heart. Also administered norepinephrine IV drip which is a vasopressor to help increase the BP. **Teaching/Resources:** -Educate about how to change modifiable risk factors. - Educate on controlling these by eating a well-balanced diet.

	-Educate that a healthy diet includes foods that are low in sodium, low in saturated fats, and high in fiber. Increasing servings of fruit and vegetables. Consuming more fish than red meat. -Educate to increase activity such as going to the gym. -Educate to follow the medication regimen. -Educate on antiplatelet therapy (aspirin and clopidogrel).

Reflection:

1. Go back to your Preconference Template:
   a. Indicate (circle, star, highlight, etc.) the components of your preconference template that you saw applied to the care of this virtual patient.

2. What was your biggest "take-away" from participating in the care of this patient? How did this impact your nursing practice?

My biggest takeaway from participating in the care of this patient is how important it is for not only the nurse to properly understand the signs and symptoms of a heart attack but also the patients. These patients and family members will most likely be out in the community and will need to take the right steps to get to the hospital. Also how important it is to get these patients to the hospital to prevent further cardiac death from occurring because everyone always needs to remember how time is tissue in these situations. This scenario will impact my nursing career because it showed how important good education regarding medication regimens and healthy lifestyle choices are to help prevent heart attacks from occurring. This also showed great communication skills between the nurses and the patient in a time of crisis.

Time Allocation: 8 hours

Module Report

Tutorial: Real Life RN Medical Surgical 4.0

Module: Myocardial Infarction Complications

ati

Individual Name: **Kirsten Taylor**

Institution: **Margaret H Rollins SON at Beebe Medical Center**

Program Type: **Diploma**

Standard Use Time and Score

	Date/Time	Time Use	Score
Myocardial Infarction Complications	2/27/2023 3:31:35 PM	2 hr 4 min	Strong

Reasoning Scenario Details
Myocardial Infarction Complications - Use on 2/27/2023 1:27:43 PM

Reasoning Scenario Performance Related to Outcomes:
*See Score Explanation and Interpretation below for additional details.

Body Function	Strong	Satisfactory	Needs Improvement
Cardiac Output and Tissue Perfusion	100%		
Cognition and Sensation	100%		
Integument	100%		
Oxygenation	100%		
Regulation and Metabolism	100%		

NCLEX RN	Strong	Satisfactory	Needs Improvement
RN Management of Care	100%		
RN Pharmacological and Parenteral Therapies	100%		
RN Reduction of Risk Potential	100%		
RN Physiological Adaptation	100%		

QSEN	Strong	Satisfactory	Needs Improvement
Safety	100%		
Patient-Centered Care	100%		
Evidence Based Practice	100%		

Decision Log:

Optimal Decision	
Scenario	Mr. Davis has taken an initial dose of nitroglycerin.
Question	Mr. Davis has taken the first dose of nitroglycerin. Which of the following actions should be taken next?
Selected Option	Mrs. Davis should call 911 if her husband's chest pain is not relieved within 5 minutes.
Rationale	Unresolved chest pain with the administration of nitroglycerin can indicate the client is having a myocardial infarction, so Mrs. Davis should call 911 if the pain continues. Mr. Davis should also take another dose of nitroglycerin. For unresolved chest pain, a total of three doses of nitroglycerin should be administered 5 minutes apart. Mr. Davis should also take a 325 mg dose of aspirin to inhibit platelet aggregation, which can reduce cardiac damage from the formation of a thrombus.

Optimal Decision	
Scenario	Nurse Christine reviews Mr. Davis's a 12-lead ECG.
Question	Nurse Christine is reviewing Mr. Davis' ECG strip, which was completed at 1725. Which pattern on the ECG strip is the priority finding? (You will find hot spots to select in the artwork below. Select only the hot spot that corresponds to your answer.)
Selected Option	137,36,147,36,137,49,147,48
Rationale	The priority finding is the ST-segment elevation possibly indicating an acute coronary event, which is the greatest risk to Mr. Davis.

Optimal Decision	
Scenario	Nurse Christine prepares to initiate prescriptions.
Question	Nurse Christine is preparing to initiate the prescriptions for Mr. Davis. Which of the following prescriptions should she expect to initiate? (Select all that apply.)
Selected Ordering	Chest x-rayTroponin levelMorphinePotassium and creatinine levels

Rationale	Nurse Christine should expect to initiate a bedside chest x-ray to rule out chest pain resulting from a dissecting aorta. A CAT-scan is ordered if the chest x-ray indicates the client has a dissecting aorta. Troponin is a cardiac enzyme, and when elevated, is an early indicator of myocardial cell damage. Morphine is administered to relieve pain, reduce myocardial oxygen consumption, and facilitate vasodilation. Potassium and creatinine are drawn for a baseline prior to the cardiac catheterization. A client having an ST-segment elevation myocardial infarction (STEMI) will not have an MRI before having a heart catheterization because this would delay the initiation of the cardiac catheterization and thus prohibit the provider meeting the 60-minute time-frame from the arrival to the facility to intervention.

Scenario	Nurse Carl is determining the priority action to take when Mr. Davis is itching.
Question	Mr. Davis is reporting itching over his arms and chest. What is the most appropriate action Nurse Carl should take? (Type your response in the field below and click "Submit" to compare your answer to the expert response.)
Selected Option	Nurse Carl should look at the IV site to see if there is any irritation at the site. Then inform the provider about the patients possible allergic reaction to the dye from the cath lab. If the doctor agrees, there may be a new order for diphenhydramine to help with the itching.
Rationale	The priority action nurse Carl should take is to check Mr. Davis's medical record for a shell fish allergy. Nurse Carl should recognize the possibility of an allergic reaction related to a shellfish allergy. Record the allergy to shellfish in the medical record and notify the provider of the allergy and Mr. Davis's report of itching. The provider can determine if Mr. Davis is having a delayed allergic reaction to the contrast dye used during cardiac catheterization. Nurse Carl should check the client's skin for a rash and request a prescription for diphenhydramine IV to decrease the itching.

Optimal Decision	
Scenario	Mr. Davis is having difficulty breathing, and Nurse Carl is assessing breath sounds.
Question	Nurse Carl is assessing Mr. Davis's breath sounds and suspects Mr. Davis is starting to experience a moderate systemic reaction to the contrast dye used for the heart catheterization. Which of the following breath sounds should the nurse expect to hear during auscultation?
Selected Option	Wheezing
Rationale	Nurse Carl should recognize that high-pitched wheezing following a heart catheterization using contrast dye indicates a moderate allergic reaction that can progress into anaphylactic shock. Anaphylactic reaction to the contrast dye requires immediate intervention. Wheezing is a continuous squeaky breath sound that arises from the small airways and is associated with inflammation and edema.

Optimal Decision	
Scenario	Nurse Carl is choosing the correct medication to administer for Mr. Davis's dyspnea and wheezing.

Question	Nurse Carl has listened to Mr. Davis's breath sounds and recognizes the manifestations of Mr. Davis's condition. Nurse Carl should expect a prescription for which of the following medications?
Selected Option	Epinephrine IM
Rationale	Nurse Carl should administer epinephrine IM to promote bronchodilation, vasoconstriction, and maintenance of the blood pressure and heart rate. Anaphylaxis is a life-threatening event and requires rapid intervention to prevent a potential critical outcome.

Optimal Decision	
Scenario	Nurse Carl is checking Mr. Davis's puncture site during the post-heart catheterization assessment.
Question	Nurse Carl is completing a post-heart catheterization assessment of Mr. Davis. Which of the following observations should Carl address first?
Selected Option	A developing hematoma at the puncture site
Rationale	The greatest risk to the client is the formation of a hematoma at the puncture site. A hematoma is an indication the client is having active bleeding into the groin tissue and requires immediate action. In addition, nurse Carl should know a hematoma can occur without observable bleeding at the puncture site. Therefore, this is the priority finding.

Optimal Decision	
Scenario	Nurse Carl finds bleeding at the puncture site.
Question	Mr. Davis's puncture site is covered with gauze and a transparent bandage. Nurse Carl is assessing Mr. Davis' puncture site for bleeding. There is a 7.62-cm (3-in) groin hematoma. The gauze is saturated with bright red blood. Which of the following actions should Nurse Carl take?
Selected Option	Apply pressure to the right groin site.
Rationale	Nurse Carl should assess the puncture site and apply pressure to the area for at least 10 minutes in the presence of active bleeding or a hematoma. Pressure is applied to create hemostasis.

Optimal Decision	
Scenario	Nurse Carl is reviewing Mr. Davis's laboratory values.
Question	Nurse Carl is reviewing Mr. Davis's laboratory results in the electronic medical records (EMRs). Which of the laboratory results should nurse Carl report immediately to the provider?
Selected Option	Potassium
Rationale	The potassium is 3.2 mEq/L, which is below the expected reference range of 3.5 to 5 mEq/L. Nurse Carl should report this value immediately to the provider.

Optimal Decision	
Scenario	Nurse Carl is planning to teach Mr. Davis about modifiable risk factors.

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Question	Nurse Carl has information to provide to Mr. Davis about modifiable risk factors for coronary artery disease. Which of the following risk factors should he include in the teaching?
Selected Option	Obesity
Rationale	Nurse Carl should include in the teaching that modifiable risk factors include obesity, cigarette smoking, hypertension, diabetes, and sedentary lifestyle. Clients can alter modifiable or controllable risk factors by making choices to change aspects of personal lifestyle.

Optimal Decision	
Scenario	Nurse Carl suspects manifestations of cardiogenic shock.
Question	Nurse Carl is assessing Mr. Davis with the charge nurse and suspects manifestations of cardiogenic shock. Which of the following findings should Carl identify as manifestations of cardiogenic shock? (Select all that apply.)
Selected Ordering	Mean arterial pressure of 54 mm HgAgitation and restlessnessArterial blood pressure of 88/54 mm Hg
Rationale	A client who is manifesting cardiogenic shock can have hemodynamic instability. These can be observed by decreased blood pressure, tachycardia, reduced mean arterial pressure (MAP), agitation, and restlessness.

Optimal Decision	
Scenario	Nurse Carl is calculating of the initial rate of the dobutamine drip.
Question	Nurse Carl is preparing to administer dobutamine 2.5 mcg/kg/min by continuous IV infusion to Mr. Davis who weighs 110 kg (242 lb). Available is dobutamine 250 mg in 250 mL of dextrose 5% in water. Carl should set the IV pump to deliver how many mL/hr? (Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.)
Selected Option	16.5
Rationale	**Follow these steps for the Ratio and Proportion method of calculation:** Step 1: What is the unit of measurement the nurse should calculate? mL/hr Step 2: What is the dose the nurse should administer? Dose to administer = Desired 2.5 mcg/kg/min *X = Dose per kg/min × Client's weight in kg* *X* mcg/min = 2.5 mcg/~~kg~~/min × 110 ~~kg~~ *X* mcg/min = 275 mcg/min Step 3: What is the dose available? Dose available = Have 250 mg Step 4: Should the nurse convert the units of measurement? Yes (mcg does not equal mg) $\frac{1,000\ mcg}{275\ mcg/min} = \frac{1\ mg}{X\ mg/min}$ *X* mg/min = 0.275 mg/min Yes (min does not equal hr) $\frac{60\ min}{X\ mg/hr} = \frac{1\ hr}{0.275\ mg/min}$ *X* mg/hr = 16.5 mg/hr Step 5: What is the quantity of the dose available? 250 mL Step 6: Set up an equation and solve for X. $\frac{Have}{Desired} = \frac{Quantity}{X}$ $\frac{250\ mg}{16.5\ mg/hr} = \frac{250\ mL}{X\ mL/hr}$ *X* mL/hr = 16.5 mL/hr *Step 7: Round if necessary.*

Step 8: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Follow these steps for the Desired Over Have method of calculation:
Step 1: What is the unit of measurement the nurse should calculate? mL/hr
Step 2: What is the dose the nurse should administer? Dose to administer = Desired 2.5 mcg/kg/min
X = Dose per kg/min × Client's weight in kg
X mcg/min = 2.5 mcg/~~kg~~/min × 110 ~~kg~~
X mcg/min = 275 mcg/min
Step 3: What is the dose available? Dose available = Have 250 mg
Step 4: Should the nurse convert the units of measurement?
Yes (mcg does not equal mg)
$\dfrac{275 \text{ mcg} \times 1 \text{ mg}}{X \text{ mg}} = \dfrac{}{1,000 \text{ mcg}}$
X mg/min = 0.275 mg/min
Yes (min does not equal hr)
$\dfrac{0.275 \text{ mg} \times 60 \text{ min}}{X \text{ mg}} = \dfrac{}{1 \text{ min}}$
X mg/hr = 16.5 mg/hr
Step 5: What is the quantity of the dose available? 250 mL
Step 6: Set up an equation and solve for X.
$\dfrac{\text{Desired} \times \text{Quantity}}{X} = \dfrac{ }{\text{Have}}$ $\dfrac{16.5 \text{ mg} \times 250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{ }{250 \text{ mg}}$
X mL/hr = 16.5 mL/hr
Step 7: Round if necessary.
Step 8: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Follow these steps for the Dimensional Analysis method of calculation:
Step 1: What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)
X mL/hr =
Step 2: Determine the ratio that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)
$\dfrac{250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{ }{250 \text{ mg}}$
Step 3: Place any remaining ratios that are relevant to the item on the right side of the equation, along with any needed conversion factors, to cancel out unwanted units of measurement.
$\dfrac{250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{1 \text{ mg}}{250 \text{ mg}} \times \dfrac{2.5 \text{ mcg}}{1,000 \text{ mcg}} \times \dfrac{110 \text{ kg}}{1 \text{ kg}} \times \dfrac{60 \text{ min}}{1 \text{ min}} \times \dfrac{}{1 \text{ hr}}$
Step 4: Solve for X.
X mL/hr = 16.5 mL/hr
Step 5: Round if necessary.
Step 6: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Optimal Decision	
Scenario	Nurse Carl is anticipating a medication prescription for Mr. Davis.

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Step 8: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Follow these steps for the Desired Over Have method of calculation:
Step 1: What is the unit of measurement the nurse should calculate? mL/hr
Step 2: What is the dose the nurse should administer? Dose to administer = Desired 2.5 mcg/kg/min
X = Dose per kg/min × Client's weight in kg
X mcg/min = 2.5 mcg/~~kg~~/min × 110 ~~kg~~
X mcg/min = 275 mcg/min
Step 3: What is the dose available? Dose available = Have 250 mg
Step 4: Should the nurse convert the units of measurement?
Yes (mcg does not equal mg)
$\dfrac{275 \text{ mcg} \times 1 \text{ mg}}{X \text{ mg}} = \dfrac{}{1,000 \text{ mcg}}$
X mg/min = 0.275 mg/min
Yes (min does not equal hr)
$\dfrac{0.275 \text{ mg} \times 60 \text{ min}}{X \text{ mg}} = \dfrac{}{1 \text{ min}}$
X mg/hr = 16.5 mg/hr
Step 5: What is the quantity of the dose available? 250 mL
Step 6: Set up an equation and solve for X.
$\dfrac{\text{Desired} \times \text{Quantity}}{X} = \dfrac{ }{\text{Have}}$ $\dfrac{16.5 \text{ mg} \times 250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{ }{250 \text{ mg}}$
X mL/hr = 16.5 mL/hr
Step 7: Round if necessary.
Step 8: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Follow these steps for the Dimensional Analysis method of calculation:
Step 1: What is the unit of measurement the nurse should calculate? (Place the unit of measure being calculated on the left side of the equation.)
X mL/hr =
Step 2: Determine the ratio that contains the same unit as the unit being calculated. (Place the ratio on the right side of the equation, ensuring that the unit in the numerator matches the unit being calculated.)
$\dfrac{250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{ }{250 \text{ mg}}$
Step 3: Place any remaining ratios that are relevant to the item on the right side of the equation, along with any needed conversion factors, to cancel out unwanted units of measurement.
$\dfrac{250 \text{ mL}}{X \text{ mL/hr}} = \dfrac{1 \text{ mg}}{250 \text{ mg}} \times \dfrac{2.5 \text{ mcg}}{1,000 \text{ mcg}} \times \dfrac{110 \text{ kg}}{1 \text{ kg}} \times \dfrac{60 \text{ min}}{1 \text{ min}} \times \dfrac{}{1 \text{ hr}}$
Step 4: Solve for X.
X mL/hr = 16.5 mL/hr
Step 5: Round if necessary.
Step 6: Determine whether the amount to administer makes sense. If there are 250 mg/250 mL and the prescription reads 2.5 mcg/kg/min, it makes sense to administer 16.5 mL/hr. The nurse should set the IV pump to deliver dobutamine at 16.5 mL/hr.

Optimal Decision	
Scenario	Nurse Carl is anticipating a medication prescription for Mr. Davis.

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Question	Nurse Carl continues to monitor Mr. Davis, who remains unstable with a systolic blood pressure less than 90 mm Hg even with a dobutamine drip infusing. Which of the following medications should nurse Carl plan to administer?
Selected Option	Norepinephrine IV drip
Rationale	Norepinephrine is a vasopressor that produces vasoconstriction resulting in increased blood pressure and increased cardiac output. Norepinephrine should be administered, along with fluid volume replacement therapy, but not with a rapid infusion. Nurse Carl should monitor Mr. Davis for arrhythmias, chest pain, and hypertension.

Optimal Decision	
Scenario	Nurse Carl is preparing to administer norepinephrine.
Question	Nurse Carl is preparing to administer norepinephrine to Mr. Davis. Which of the following actions should nurse Carl plan to take?
Selected Option	Administer the medication through a central venous catheter.
Rationale	A norepinephrine drip should be infused using a large vein or central venous catheter to prevent localized vasoconstriction, which can result in extravasation and tissue necrosis.

Optimal Decision	
Scenario	Nurse Carl is monitoring for adverse effects of norepinephrine.
Question	Nurse Carl is reviewing a medication reference for adverse effects of norepinephrine. For which of the following findings should Carl monitor as an adverse effect of the medication?
Selected Option	Decreased urine output
Rationale	Mr. Davis might experience the adverse effect of decreased urine output due to vasoconstrictive effects on the renal arteries and hypoperfusion of the kidneys.

Optimal Decision	
Scenario	Lifestyle changes to reduce the risk of further coronary events.
Question	Nurse Carl is listening to Mr. Davis who is sharing about his plans for lifestyle changes. Which of the following statements indicates that Mr. Davis is planning to make appropriate lifestyle changes?
Selected Option	"I will reduce my sodium intake to 1,500 milligrams a day."
Rationale	Mr. Davis, who is African American, over the age of 50, and has a history of hypertension, should decrease sodium intake to 1,500 mg/day.

Optimal Decision	
Scenario	Nurse Carl is reviewing food choices with Mr. and Mrs. Davis.
Question	Nurse Carl has asked Mr. Davis to select foods from the hospital breakfast menu. Nurse Carl should determine that which of the following foods selected by Mr. Davis is the best choice for adhering to a 1,500 mg low-sodium diet?
Selected Option	3/4 cup shredded wheat cereal

Rationale	Nurse Carl should recognize that shredded wheat cereal is the best food choice for Mr. Davis because 1 cup contains just 1 mg of sodium.

Optimal Decision	
Scenario	Nurse Carl is teaching Mr. Davis about lisinopril.
Question	Nurse Carl is teaching Mr. Davis about taking lisinopril for hypertension. Which of the following information should Carl include in the teaching?
Selected Option	"Report a persistent dry cough."
Rationale	Nurse Carl should include that a persistent dry cough is an adverse effect of lisinopril and may persist until the medication is discontinued. Mr. Davis should notify the provider if he experiences this adverse effect, so the medication can be changed.

Score Explanation and Interpretation
Individual Performance Profile

REASONING SCENARIO INFORMATION

Reasoning Scenario Information provides the date, time and amount of time use, along with the score earned for each attempt. The percentage of students earning a Scenario Performance of Strong, Satisfactory, or Needs Improvement is provided. In addition, the Scenario Performance for each student is provided, along with date, time, and time use for each attempt. This information is also provided for the Optimal Decision Mode if it has been enabled.

If a detrimental decision is made during a Real Life scenario, the scenario will diverge from the optimal path and potentially end prematurely, in which case an indicator will appear on the score report.

REASONING SCENARIO PERFORMANCE SCORES

Strong	Exhibits optimal reasoning that results in positive outcomes in the care of clients and resolution of problems.
Satisfactory	Exhibits reasoning that results in mildly helpful or neutral outcomes in the care of clients and resolution of problems.
Needs Improvement	Exhibits reasoning that results in harmful or detrimental outcomes in the care of clients and resolution of problems.

REASONING SCENARIO PERFORMANCE RELATED TO NURSING COMPETENCY OUTCOMES

A performance indicator is provided for each outcome listed within the nursing competency outcome categories. Percentages are based on the number of questions answered correctly out of the total number of questions that were assigned to the given outcome. Outcomes have varying numbers of questions assigned to them. Also, due to divergent paths within the branching simulation, the outcomes encountered and the number of questions for each outcome can vary. The above factors cause limitations related to comparing scores across students or groups of students.

NCLEX® CLIENT NEED CATEGORIES

Management of Care	Providing integrated, cost-effective care to clients by coordinating, supervising, and/or collaborating with members of the multi-disciplinary health care team.
Safety and Infection Control	Incorporating preventative safety measures in the provision of client care that provides for the health and well-being of clients, significant others, and members of the health care team.
Health Promotion and Maintenance	Providing and directing nursing care that encourages prevention and early detection of illness, as well as the promotion of health.
Psychosocial Integrity	Promoting mental, emotional, and social well-being of clients and significant others through the provision of nursing care.
Basic Care and Comfort	Promoting comfort while helping clients perform activities of daily living.
Pharmacological and Parenteral Therapies	Providing and directing administration of medication, including parenteral therapy.
Reduction of Risk Potential	Providing nursing care that decreases the risk of clients developing health-related complications.
Physiological Adaptation	Providing and directing nursing care for clients experiencing physical illness.

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QUALITY AND SAFETY EDUCATION FOR NURSES (QSEN)

Safety	The minimization of risk factors that could cause injury or harm while promoting quality care and maintaining a secure environment for clients, self, and others.
Patient-Centered Care	The provision of caring and compassionate, culturally sensitive care that is based on a client's physiological, psychological, sociological, spiritual, and cultural needs, preferences, and values.
Evidence Based Practice	The use of current knowledge from research and other credible sources, upon which clinical judgment and client care are based.
Informatics	The use of information technology as a communication and information gathering tool that supports clinical decision making and scientifically based nursing practice.
Quality Improvement	Care related and organizational processes that involve the development and implementation of a plan to improve health care services and better meet the needs of clients.
Teamwork and Collaboration	The delivery of client care in partnership with multidisciplinary members of the health care team, to achieve continuity of care and positive client outcomes.

BODY FUNCTION

Cardiac Output and Tissue Perfusion	The anatomical structures (heart, blood vessels, and blood) and body functions that support adequate cardiac output and perfusion of body tissues.
Cognition and Sensation	The anatomical structures (brain, central and peripheral nervous systems, eyes and ears) and body functions that support perception, interpretation, and response to internal and external stimuli.
Excretion	The anatomical structures (kidney, ureters, and bladder) and body functions that support filtration and excretion of liquid wastes, regulate fluid and electrolyte and acid-base balance.
Immunity	The anatomic structures (spleen, thymus, bone marrow, and lymphatic system) and body functions related to inflammation, immunity, and cell growth.
Ingestion, Digestion, Absorption, and Elimination	The anatomical structures (mouth, esophagus, stomach, gall bladder, liver, small and large bowel, and rectum) and body functions that support ingestion, digestion, and absorption of food and elimination of solid wastes from the body.
Integument	The anatomical structures (skin, hair, and nails) and body functions related to protecting the inner organs from the external environment and injury.
Mobility	The anatomical structures (bones, joints, and muscles) and body functions that support the body and provide its movement.
Oxygenation	The anatomical structures (nose, pharynx, larynx, trachea, and lungs) and body functions that support adequate oxygenation of tissues and removal of carbon dioxide.
Regulation and Metabolism	The anatomical structures (pituitary, thyroid, parathyroid, pancreas, and adrenal glands) and body functions that regulate the body's internal environment.
Reproduction	The anatomical structures (breasts, ovaries, fallopian tubes, uterus, vagina, vulva, testicles, prostate, scrotum, and penis) and body functions that support reproductive functions.

DECISION LOG

Information related to each question answered in a scenario attempt is listed in the report. A brief description of the scenario, question, selected option and rationale for that option are provided for each question answered. The words "Optimal Decision" appear next to the question when the most optimal option was selected.

The rationale for each selected option may be used to guide remediation. A variety of learning resources may be used in the review process, including related ATI Review Modules.

If a detrimental decision that could result in grave harm to the client is made during a Real Life scenario, the scenario ends immediately and an indicator that a detrimental decision has been made appears in the score report. A detrimental decision indicates the need to remediate the related topic area to prevent detrimental outcomes in the future.

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