

ATI Real Life Student Packet
N202 Advanced Concepts of Nursing
2025

Student Name: Chloe Sylvester

ATI Scenario: MI

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: Myocardial Infarction

NCLEX IV (8): Physiological Integrity/Physiological Adaptation

NCLEX IV (7): Reduction of Risk

Anatomy and Physiology
Normal Structures

- 4 chambered hollow muscular organ
- endocardium (innermost, thin), myocardium (muscle), epicardium (outer covering)
- pericardium → visceral/parietal covering
- atrial myocardium thin, left ventricular wall = much thicker to pump systemically
- valves connect to chordae tendinae, valves prevent regurgitation
- diastole → relaxation → blood flows into arteries
- systole → contraction → ejection of blood from ventricles
- action potential is carried as depolarization of \heartsuit cells occur and \heartsuit contracts [travels via internodal paths from AV node]
- CO = amount of blood pumped by each ventricle/minute
↳ controlled by ANS
- preload = volume of blood in ventricles at end of diastole
- afterload = resistance the LV must pump

Vascular System:

- arteries → oxygenated blood away from \heartsuit (except PA) [elastic tissue * thick]
- veins → deoxygenated blood to \heartsuit (except PV) [thin]
- capillaries → connect arteries & veins → allow exchange ~ membrane
↳ endothelial tissue, NOT elastic or muscle

Pathophysiology of Disease

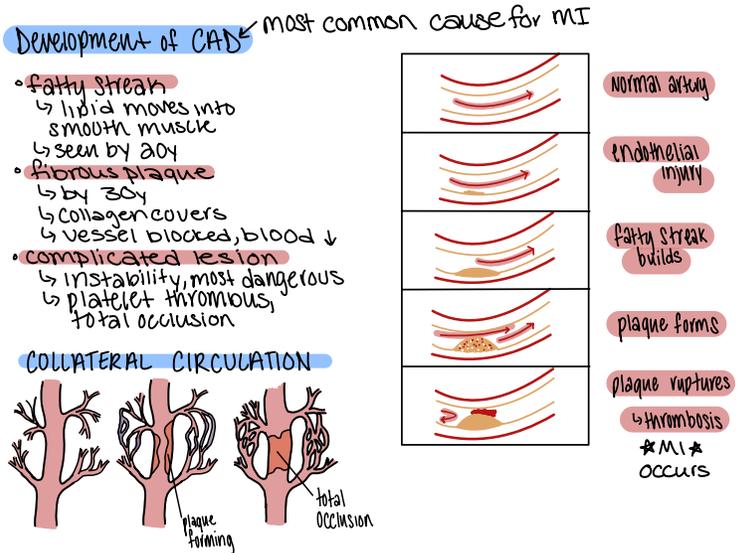
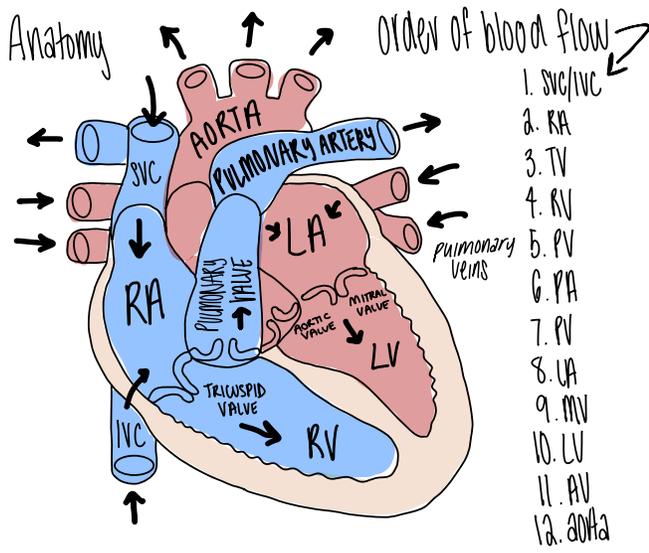
- result of abrupt stoppage of blood flow through a coronary artery with a thrombus caused by platelet aggregation
↳ this causes irreversible myocardial cell death = tissue necrosis

type 1 = STEMI * emergency
↳ caused by occlusive thrombus
↳ ST elevation seen on the leads facing the area of infarction

type 2 = NSTEMI
↳ caused by non-occlusive thrombus
↳ no ST elevation seen
↳ not as emergent? can go to cath lab within 12-72 hours

- process occurs over hours to over days
- most MIs impact the left ventricle
- necrosis of entire thickness of myocardium takes 4-6 hrs
- 10 seconds = hypoxia to myocardium
↳ lactic acid = result of anaerobic metabolism + causes angina

* the amount of collateral circulation present greatly determines the severity of the MI



To Be Completed Before the Simulation

Anticipated Patient Problem: Decreased Cardiac Output

Goal 1: HR will remain 60-100 bpm in normal sinus rhythm during my care.

Goal 2: UOP will remain > 30 mL/hr during my care.

<p>Relevant Assessments</p> <p>(Prewrite) What assessments pertain to your patient's problem? Include timeframes</p>	<p>Multidisciplinary Team Intervention</p> <p>(Prewrite) What will you do if your assessment is abnormal?</p>
<p>Assess BP, HR, RR with VS q4</p>	<p>Maintain high Fowler's position, bed rest with position changes (turning q2 if needed)</p>
<p>Assess heart rhythm continuously</p>	<p>Administer beta blockers or ACE inhibitors as prescribed</p>
<p>Assess SpO₂ q4 ↳ and breath sounds for crackles</p>	<p>Apply O₂ NC PRN to maintain SpO₂ > 93%, provide rest periods</p>
<p>Assess UOP q8 hr</p>	<p>Admin diuretics</p>
<p>Assess skin temp and peripheral pulses q4</p>	<p>Apply pneumatic compression devices,</p>
<p>Monitor BNP, troponins and electrolytes as resulted</p>	<p>Replace lytes if required, admin fluids, admin ace inhibitors, beta blockers</p>

To Be Completed Before the Simulation

Anticipated Patient Problem: Acute Pain: chest

Goal 1: Will rate angina as 0/10 during my time of care.

Goal 2: will exhibit comfort with VS that correlate to baseline. HR 60-100 NSR + BP within 10 mmHg of 120/80 during my time of care.

<p>Relevant Assessments</p> <p>(Prewrite) What assessments pertain to your patient's problem? Include timeframes</p>	<p>Multidisciplinary Team Intervention</p> <p>(Prewrite) What will you do if your assessment is abnormal?</p>
<p>Assess presence of angina q1h ± PRN.</p>	<p>admin SL nitro q5 x 3 or less if angina relieved, notify provider</p>
<p>Assess pain quality, location, precipitating/relieving factors q4 PRN</p>	<p>admin IV morphine as order</p>
<p>Assess effectiveness of pain relieving interventions PRN</p>	<p>notify provider about unrelieved pain</p>
<p>Assess non-verbals: guarding chest, facial grimacing PRN</p>	<p>Cluster care, establish pain goal at a 0/10</p>
<p>Assess anxiety continuously</p>	<p>admin morphine, provide information, allow rest periods as needed</p>
<p>Assess knowledge of nitro use, short ± long term, once per day</p>	<p>educate on use on nitro q5 x 3 if needed + before exertion for short acting, daily use of long acting to prevent recurrence.</p>

Nursing Notes

Initials/Signature: CDS / Chloe Sylvester SNB

Rm No: MI ATI

Actual Patient Problem: Decreased Cardiac Output	
Clinical Reasoning: Occlusion of LAD, hypoxia to myocardium, acute left sided HF post PCI, reperfusion dysrhythmias	
Goal: UOP will remain > 30ml/hr during my care.	Met: <input checked="" type="checkbox"/> Unmet: <input type="checkbox"/>
Goal: HR will remain in NSR and 60-100bpm during my time of care.	Met: <input type="checkbox"/> Unmet: <input checked="" type="checkbox"/>
Actual Patient Problem: Acute Pain: Chest	
Clinical Reasoning: hypoxia to myocardium, lactic acid accumulation in heart tissue	
Goal: Angina will remain 0/10 pain scoring post intervention.	Met: <input checked="" type="checkbox"/> Unmet: <input type="checkbox"/>
Goal: Will exhibit comfort with VS that correlate to baseline, HR 60-100, BP within 10mm Hg of 120/80.	Met: <input type="checkbox"/> Unmet: <input checked="" type="checkbox"/>

Additional Problems: Deficient Knowledge: Modifiable RF, Electrolyte Imbalance: K, Risk for Bleeding: PCI access point - groin, Risk for adverse reaction to iodinated contrast media – had allergic reaction to shellfish in past, Impaired Gas Exchange – related to anaphylactic reaction, Readiness for enhanced nutrition

Patient Problem	Time	Relevant Assessments Indicate pertinent assessment findings.	Time	Multidisciplinary Team Intervention What interventions were done in response to your abnormal assessments?	Time	Reassessment/Evaluation What was your patient's response to the intervention?
Acute Pain: Chest	<u>12/6</u> 1655	Clutching chest, "I don't feel well...my chest feels like it's being squeezed" post activity – shoveling driveway	1655	Wife brought Nitroglycerin tablets	1715	Chest pain unrelieved by 3 doses of Nitroglycerin
DCO/ Acute Pain: Chest	1725	HR 106, RR 24, BP 100/66, O2 96% on 4L NC, pain rating 8/10, ST elevation present on EKG	1730	Provider explained what a STEMI is, educated on the procedure and how a stent will be placed	1735	HR 104, RR 22, BP 102/68, O2 97% on 4L NC, 8/10 pain
DCO/ Acute Pain: Chest/Risk for Bleeding	1745	Hgb 15.9, Hct 54, Plt 220, Troponin T 0.2, Troponin I 0.06, PTT 34, PPT 12, INR 0.9, ABGs: pH 7.35, paO2 85, paCO2 40, HCO3 26, saO2 95	1750	Percutaneous Coronary Intervention (PCI) performed with stent placed in the LAD, educated on importance of lying flat post-op to prevent bleeding from groin site, explained if coughing is necessary, to brace the groin site, report any onset of angina	2100	T 36, HR 96 NSR with PVCs, RR 14, BP 112/66, O2 98% on 2L NC, CVP 10, 0/10 pain reported, dressing clean, dry and intact

Risk for adverse reaction to iodinated contrast media/Impaired Gas Exchange	2120	HR 116 sinus tach with PVCs, RR 32, BP 155/98, O2 87% on 2L, skin ashen, nail beds dusky, stridor, "I can't catch my breath"	2130	Rapid response called – Benadryl 25mg administered IV, Epinephrine 0.3mg administered IM, switched 2L NC to NRB mask on 15 L	2205	Groin dressing saturated in bright sanguineous drainage, 3-inch hematoma present on R groin
Risk for Bleeding	2205	Groin dressing saturated in bright sanguineous drainage, 3-inch hematoma present on R groin	2205	Applied manual pressure to the R groin, applied pressure dressing, NRB mask changed back to 3L NC	2230	Bleeding was stopped with manual pressure, 6-inch hematoma present, HR 78 NSR with PVCs, RR 12, BP 112/74, O2 99% on 3L NC
Risk for Electrolyte Imbalance	2230	K resulted as 3.2	2235	Administered Potassium 20 mEq PO	2240	Resting with eyes closed, RR 14 even and unlabored
Deficient Knowledge: Modifiable RF	<u>12/7</u> 1600	"I eat fast food 4x per week, I don't have time to exercise...I walk at work," reports smoking cessation around one month ago without substitute nicotine products used	1600	Educated to decrease saturated fats and sodium, increase fruits/vegetables and fiber, explained modifiable risk factors require lifestyle changes to be made, provided written materials for reviewal	1610	Receptive to information, asking questions, will work on beginning an exercise regimen
DCO	<u>12/8</u> 1935	Skin cold and clammy, restless, and agitated, MAP 54, UOP decreased from an average of 200ml/hr to 48ml/hr, BP 84/48, HR 100 sinus tach with PVCs	1940	Notified provider to receive orders for a Dobutamine drip starting at 2.5mcg/kg/min and NSS to run at 250ml/hr	1945	MAP and SBP not increasing with the Dobutamine drip
DCO	1945	MAP and SBP not increasing with the Dobutamine drip	1945	Notified provider to receive orders for Levophed drip titrated from 0.05mcg/min to maintain an SBP of >100	2040	"I am not as shaky or sweaty and I feel a lot better"
Risk for Bleeding, Readiness for enhanced nutrition	<u>12/9</u> 1900	Hematoma no longer present, 3-inch ecchymosis to R groin, all breath sounds clear, HR 68 in NSR with only occasional PVCs, RR 12, BP 124/72, O2 98% on RA, K 3.4	1900	Educated on sodium limit of 1500mg per day, utilized interactive demonstration to look at food labels and sodium content, reinforced no fast food, included exercise in daily routine and to report any signs of bleeding due to taking Clopidogrel and ASA daily	1915	Motivated with wife to make lifestyle changes, limit sodium intake, and begin regular exercise

To Be Completed After the Simulation

The orange boxes should be filled out with your simulation patient's actual results, assessments, medications, and recommendations

NCLEX IV (7): Reduction of Risk

NCLEX II (3): Health Promotion and Maintenance

Actual Labs/ Diagnostics
 CXR
 Cardiac Cath - occlusion of LAB, IV damage
 troponin T 0.2
 troponin I 0.06
 ABGs 1st set: pH 7.35, PaO2 85, PaCO2 40, HCO3 26
 EKG - showed ST elevation (STEMI)

Signs and Symptoms
 Chest pain
 Shortness of breath
 nausea
 dizziness

NCLEX II (3): Health Promotion and Maintenance

NCLEX IV (7): Reduction of Risk

Contributing Risk Factors
 Obesity
 fast food x 4 /week
 no exercise regimen
 Smoker
 male

Therapeutic Procedures
Non-surgical

Surgical
 Cardiac catheterization with stent

Prevention of Complications
 (Any complications associated with the client's disease process? If not what are some complications you anticipate)
 Cardiogenic shock
 dysrhythmias
 acute HF

NCLEX IV (6): Pharmacological and Parenteral Therapies

NCLEX IV (5): Basic Care and Comfort

NCLEX III (4): Psychosocial/Holistic Care Needs

Medication Management
 ACEs- lisinopril
 anti pH - ASA + clopidogril
 pressors - Levo ÷ Dobutamine
 htes - K supplement

Non-Pharmacologic Care Measures
 O2 therapy
 education
 relaxation techniques

Stressors the client experienced?
 necessary lifestyle changes
 severe, unrelieved pain
 need for emergent procedure
 allergic reaction (cath dye)

Client/Family Education

NCLEX I (1): Safe and Effective Care Environment

Document 3 teaching topics specific for this client.
 ? 1500 mg na restriction
 ? need for exercise
 ? continuing smoking cessation

Multidisciplinary Team Involvement
 (Which other disciplines were involved in caring for this client?)
 nurse, MD, dietician, charge RN

dietician outpatient, support groups, Patient Resources
 Cardiac rehab, follow up with PCP for med adherence, AHA site for support and diet ideas, his wife to help encourage healthy choices, diet ÷ exercise

Reflection Questions

Directions: Write reflection including the following:

1. What was your biggest "take away" from participating in the care of this client?

My biggest take away from this client's care is the importance of assessing for and readiness of changes in the patient's status. He had many changes such as the hematoma formation, reaction to dye, and development of cardiogenic shock/acute L sided HF.

2. What was something that surprised you in the care of this patient?

I was surprised that the symptoms of cardiogenic shock/acute L-sided HF came on so quickly following the PCI. The quick recognition of these symptoms by the RN allowed for prompt intervention and management of his MAP by pressors.

3. What is something you would do differently with the care of this client?

I was confused that the client was not questioned for a shellfish allergy prior to the cath. This step would have allowed for pre-medication and the prevention of an anaphylactic reaction.

4. How will this simulation experience impact your nursing practice?

This sim was very helpful as a reminder to always expect unexpected changes in your patient. Rapid recognition of changes is essential in order to begin interventions as soon as possible and promote the best possible patient outcomes.

Module Report

Tutorial: Real Life RN Medical Surgical 4.0

Module: Myocardial Infarction Complications



Individual Name: **Chloe Sylvester**

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

Program Type: **Diploma**

Standard Use Time and Score

	Date/Time (ET)	Time Use	Score
Myocardial Infarction Complications	4/3/2025 8:55:40 AM	1 hr 52 min	Strong

Reasoning Scenario Details Myocardial Infarction Complications - Use on 4/3/2025 8:52:46 AM ET

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.
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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? (Enter your response, then click on the submit button at the bottom of the screen. Compare your response to the one provided.)
Selected Option	Check to see if a shellfish allergy has every been recorded for Mr. Davis, this could be a reaction to the dye used during his cardiac cath. He should contact the provider to inform him of the reaction.
Rationale	The priority action nurse Carl should take is to assess Mr. Davis further for findings of an allergic reaction. Nurse Carl should check the medical record for potential allergies, document the allergy to shellfish, check the client's skin for rash, and notify the provider of the findings. Nurse Carl should also request a prescription for diphenhydramine IV to decrease the severity of the itching. Although Mr. Davis recently reported the shellfish allergy, current evidence-based practice guidelines now suggest that there is no correlation between shellfish allergy and contrast dye allergy. Therefore, the provider can determine if Mr. Davis is having a delayed allergic reaction to contrast media used during the cardiac catheterization.

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	
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Scenario	Nurse Carl is planning to teach Mr. Davis about modifiable risk factors.
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 Hg Agitation and restlessness Arterial 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	<p>Follow these steps for the Ratio and Proportion method of calculation:</p> <p>Step 1: What is the unit of measurement the nurse should calculate? mL/hr</p> <p>Step 2: What is the dose the nurse should administer? Dose to administer = Desired 2.5 mcg/kg/min</p> $X = \text{Dose per kg/min} \times \text{Client's weight in kg}$ $X \text{ mcg/min} = 2.5 \text{ mcg/kg/min} \times 110 \text{ kg}$ $X \text{ mcg/min} = 275 \text{ mcg/min}$ <p>Step 3: What is the dose available? Dose available = Have 250 mg</p> <p>Step 4: Should the nurse convert the units of measurement?</p> <p>Yes (mcg does not equal mg)</p> $\frac{1,000 \text{ mcg}}{1 \text{ mg}} \times \frac{275 \text{ mcg/min}}{1 \text{ mg}} = 1 \text{ mg} \times X \text{ mg/min}$ $X \text{ mg/min} = 0.275 \text{ mg/min}$ <p>Yes (min does not equal hr)</p> $\frac{60 \text{ min}}{1 \text{ hr}} \times X \text{ mg/min} = 1 \text{ hr} \times 0.275 \text{ mg/min}$ $X \text{ mg/hr} = 16.5 \text{ mg/hr}$ <p>Step 5: What is the quantity of the dose available? 250 mL</p> <p>Step 6: Set up an equation and solve for X.</p> $\frac{\text{Have}}{\text{Desired}} = \frac{\text{Quantity}}{X} \times \frac{250 \text{ mg}}{16.5 \text{ mg/hr}} = \frac{160}{250 \text{ mL}} \times X \text{ mL/hr}$

$$X \text{ mL/hr} = 16.5 \text{ mL/hr}$$

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

$$X = \text{Dose per kg/min} \times \text{Client's weight in kg}$$

$$X \text{ mcg/min} = 2.5 \text{ mcg/kg/min} \times 110 \text{ kg}$$

$$X \text{ mcg/min} = 275 \text{ mcg/min}$$

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)

$$275 \text{ mcg} \times 1 \text{ mg} / 1,000 \text{ mcg} = 0.275 \text{ mg}$$

$$X \text{ mg/min} = 0.275 \text{ mg/min}$$

Yes (min does not equal hr)

$$0.275 \text{ mg} \times 60 \text{ min} / 1 \text{ hr} = 16.5 \text{ mg/hr}$$

$$X \text{ mg/hr} = 16.5 \text{ mg/hr}$$

Step 5: What is the quantity of the dose available? 250 mL

Step 6: Set up an equation and solve for X.

$$\text{Desired} \times \text{Quantity} / \text{Have} = 16.5 \text{ mg} \times 250 \text{ mL} / X \text{ mL/hr} = 250 \text{ mg}$$

$$X \text{ mL/hr} = 16.5 \text{ mL/hr}$$

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.)

$$X \text{ mL/hr} =$$

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.)

$$250 \text{ mL} / X \text{ mL/hr} = 250 \text{ mg}$$

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.

$$250 \text{ mL} \frac{1 \text{ mg}}{2.5 \text{ mcg}} \frac{110 \text{ kg}}{60 \text{ min}} X \text{ mL/hr} = 250 \text{ mg} \times \frac{1 \text{ kg}}{1,000 \text{ mcg}} \times \frac{1 \text{ min}}{1 \text{ hr}}$$

Step 4: Solve for X.

$$X \text{ mL/hr} = 16.5 \text{ mL/hr}$$

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.
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.

Individual Report – Score Explanation and Interpretation

Reasoning Scenario Information:

Reasoning Scenario Information provides the date, time and duration of use, along with the score earned for each attempt. A Reasoning Scenario Performance score of Strong, Satisfactory, or Needs Improvement is provided for each attempt. This information is also provided for the Optimal Decision Mode if it has been enabled.

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 Outcomes:

A clinical reasoning performance score related to each outcome is provided. Outcomes associated with student responses are listed in the report. The number across from each outcome indicates the percentage of responses associated with the level of performance of that outcome.

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.