Student Name Sara Wallace
ATI Real Life Scenario MI

*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: Myocardial infarction

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation

Anatomy and Physiology

Normal Structures

The heart has 4 chambers & is about the size of a fist, it lies in the thorax in the mediastinal space. The heart has 3 layers: endocardium (inner) myocardium (middle ♡ muscle) & epicardium (outer); ♡ is covered by a fibroserous sac (pericardium), pericardium has 2 layers: visceral (inner) &

continued on extra sheet

Pathophysiology of Disease

An MI commonly occurs when the presence of CAD results in a occlusive or nonocclusive blockage in a coronary artery. An MI falls on a spectrum of acute coronary syndromes (ACS); this includes ASTEMI, NSTEMI & unstable angina (UA); ASTEMI results from an occlusive blockage; UA & NSTEMI result from a nonocclusive thrombus. Overall an MI results from an abrupt

continued on extra sheet

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs

- Troponins (serial)
- creatinine kinase
- myoglobin
- CBC - electrolytes
- chem 7 - ESR/CRP
- ABGs

Additional Diagnostics

- Cardiac cath - health history
- EKG (NSTEMI or STEMI)

NCLEX II *(3)*: Health Promotion and Maintenance

Contributing Risk Factors

- Age - gender
- Elevated Lipids
- Family history/ Genetics
- inactivity/obesity
- CAD - smoking
- Substance Abuse
- HTN

Signs and Symptoms

- pain: crushing, sharp, tight, burning in substernal/epigastric area usually 20 mins or >, radiate to left arm
- women: loss of appetite, jaw/back pain - ↑HR & ↑BP then ↓
- Elderly: Δ mental status, SOB, pulmedema
- cool, clammy,
- Diaphoresis - N/V
- crackles - fever (up to 100.4)
- persistent pain

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures

Non-surgical

- Thrombolytics

Surgical

- PCI + Balloon angioplasty (20 mins)
- Atherectomy
- cardiac cath (12-72)
- Bypass surgery (4-8)

Prevention of Complications

(What are some potential complications associated with this disease process)

- Dysrhythmias - V tach, V fib, etc.
- heart failure
- Acute pulmonary edema
- Thrombo emboli
- pericarditis
- Dressler's syndrome
- cardiogenic shock
- ventricular septal wall rupture | LV free wall rupture
- ventricular aneurysm
- papillary muscle rupture

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

Anticipated Medication Management

- Morphine (IV)
- ACE inhibitors
- glycoprotein IIB, IIIA
- Beta Blockers
- Stool softeners
- Nitro (IV)
- vasodilators
- heparin
- Antiplatelets ASA, plavix
- ARBs
- Antidysrhythmic (Amiodarone)
- Lipid lowering (statins)

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

Non-Pharmacologic Care Measures

- Oxygen (to maintain stats)
- continous EKG monitoring
- Bedrest to ↓ myocardial O2 demand, ↑ activity slowly
- hydration as appropriate

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

What stressors might a patient with this diagnosis be experiencing?

- Anxiety: related to condition, cost, Δ in ADLs, having to live with this now
- Fear: Fear of death/near death
- Stress: cost, unable to work
- Regret: Lifestyle choices that may have contributed to MI

Client/Family Education

List 3 potential teaching topics/areas

- Educate on importance of med management & cardiac follow up
- Educate on use of cardiac rehab
- Educate on dietary considerations (↓ sodium)

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) - Charge RN

- Nurses in PCP office
- PT, OT
- cath lab team
- Doctors (PCP)
- cardiac rehab program
- surgeons
- Lab
- AIDS
- ICU Nurses | ED Nurses

Normal App of ♡:

Outer layer parietal; this area holds around 10-15 ml of fluid to provide lubrication as the heart beats. The septum vertically divides the ♡, creating a left and right atrium (interatrial septum) and a right and left ventricle (interventricular septum). The atrial myocardium is thinner than the ventricles and the LV is 2-3x thicker than the RV. This ensures the LV can push blood flow out systemically. The ♡ has 4 valves within it: which function to keep blood flowing forward. The cusps of the mitral & tricuspid valves have thin strands of fibrous tissue (called cordae tendineae) attached and anchored to papillary muscles to prevent the eversion of the leaflets into the atria during ventricular contraction. The pulmonic & aortic valves prevent the regurgitation of blood into the ventricles at the end of each ventricular contraction. Systole = contraction; diastole = relaxation & filling. The coronary arteries supply the myocardium with blood (oxygen & nutrients) & blood flow into 2 major coronary arteries occurs during diastole. The left coronary artery arises from the aorta & divides into 2 main branches (1) left anterior descending artery (LAD) (2) left circumflex artery. These arteries supply the left atrium, left ventricle, interventricular septum, & part of the right ventricle. The right coronary artery (RCA) also arises from the aorta and its branches supply the right atrium, right ventricle & part of the posterior wall of the left ventricle. The AV node & bundle of His also recieve blood supply from the RCA. Blockages in the RCA can thus reflect in conduction abnormalities. The conduction system consist of specialized tissue that concreate & conduct electrical impulses or action potentials. This impulse starts heart cells depolarization & result in contraction. The impulse begins in the SA node (pacemaker) travels to the AV node (holds the impulse for very brief period of time so atria can contract), then moves to the bundle of His & the left & right bundle branches. Action potential then moves through walls of ventricle through the purkinje fibers resulting in a synchronized LV & RV contraction. repolarization occurs when the contractile & conduction pathway cells regain their resting polarized condition. During ventricular contraction there is an absolute refractory period where the ♡ muscle cannot respond to stimuli, then the ♡ gradually recovers its excitability & has a relative refractory period by early diastole then returns to polarized resting state. Blood flow returning from the body enters the heart via the superior & inferior vena cava, enters the RA goes through the tricuspid valve to enter the RV, goes through the pulmonic valve to then enter the pulmonary artery to go to the lungs for gas exchange (picks up O_2, releases CO_2); blood returns from the ♡ via the pulmonary vein, enters the LA goes through the mitral valve and enters the LV where it goes to the aorta (& systemic circulation) via the aortic valve. Normal HR = 60-100 bpm; CO = SV x HR; CO = amount of blood pumped by each ventricle in 1 min; SV = volume of blood pumped out q contraction. ↳ 4-8 L/min = normal; preload is the stretch of the ventricles at the end of diastole; afterload is the peripheral resistance the LV must pump against. SNS = ↑ HR & contractility; parasympathetic NS: ↓ HR

Patho continued: Stoppage of blood flow through a coronary artery with a thrombus caused by platelet aggregation; this causes irreversible myocardial cell death (necrosis) in the ♡ muscle beyond the blockage. A STEMI (caused by an occlusive thrombus) results in ST elevation on the EKG leads facing the infarction. This elevation is significant if it is 1mm above the isometric line. A STEMI is an emergency and needs prompt treatment to limit infarct size (PCI w/i 90 mins or thrombolytics w/i 30 mins). An NSTEMI (caused by a nonocclusive thrombus) does not cause ST elevation & the EKG may or may not show ST depression & or T wave inversion in leads facing the infarction. NSTEMI pts undergo cardiac cath in 12-72 hours usually. The location of the MI & EKG changes correlate with the involved coronary artery. LAD blockage would show in the anterior leads V_1-V_4; RCA blockage would show in leads inferior II, III & aVF and a blockage of the left circumflex would show in lateral V_5-V_6, I, aVL. The degree of collateral circulation also influences severity of MI as collateral circulation develops overtime & provides another route for blood flow past the blockage; the healing process: The body responds to cell death with the inflammatory processes within 24 hours. Leukocytes infiltrate the area; the dead heart cells release enzymes (serum biomarkers!) and neutrophils & macrophages remove necrotic tissue by the 4th day. At 10-14 days after MI, the new scar tissue is still weak; By 6 weeks scar tissue has replaced the necrotic tissue and the area is "healed". Often the scarred area is less compliant than the surrounding area. To compensate for the damaged ♡ muscle the ♡ may hypertrophy & dilate (called ventricular remodeling).

Student Name Sara Wallace
ATI Real Life Scenario MI

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

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

Problem #1: Acute Pain: Chest

Patient Goals:

1. Pt will report a pain level of 4 or less out of 10 during my time of care.
2. Pt will not demonstrate facial grimacing, wincing or guarding during my time of care.

Assessments: - Assess HR q4hrs & prn - Assess BP q4hrs & prn - Assess RR q4hrs & prn
- Assess pain score q hr and prn - Assess pain relief expectations q shift
➢ - Assess pain quality q hr and prn - Assess for grimacing or wincing q2hrs & prn
- Assess for gaurding q2hrs & prn.

Interventions (In priority order):

1. Administer Nitroglycerin as ordered during my time of care
2. Administer morphine as ordered during my time of care.
3. Administer Betablockers as ordered during my time of care.
4. Administer oxygen as ordered during my time of care.
5. Encourage Bed rest and breathing techniques to maximize myocardial O_2 supply & ↓ demand during my time of care.
6. Educate on treatment options (PCI or thrombolytics) during my time of care.

Problem #2: Decreased Cardiac Output: myocardial Infarction

Patient Goals:

1. Pt will demonstrate a urine output of ≥ 30mL/hr during my time of care.
2. Pt will demonstrate +2 peripheral pulses, skin warm to touch, and appropriate LOC (Alert and oriented x4) during my time of care.

Assessments: - Assess EKG for changes prn
- Assess urine output q hr - Assess skin temp & color q2hrs - Assess BP q4hrs & prn
➢ - Assess peripheral pulses q2hrs & prn. - Assess HR q4hrs & prn - Assess RR q4hrs & prn
- Assess mental status / LOC q2hrs & prn - Assess lung sounds q4hrs & prn
- Assess SpO_2 q4hrs & prn

Interventions (In priority order):

1. Administer Betablockers as ordered during my time of care.
2. Administer oxygen as ordered during my time of care.
3. Administer ACE inhibitors as ordered during my time of care
4. Administer morphine as ordered during my time of care.
5. Administer antidysrhythmic medications to prevent dysrhythmias as ordered during my time of care.
6. Educate on cardiac rehab program to improve cardiac function during my time of care.

At this time, complete assigned ATI Real Life Simulation

Student Name Sara Wanacc
ATI Real Life Scenario MI

Actual Patient Problems & Goals

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

Problem #1: Decreased cardiac output: MI and cardiogenetic shock

Patient Goals:

1. RD will demonstrate a UO of at least ≥30mL/hr during my time of care. Met ☑ Unmet ☐
2. RD will demonstrate an appropriate LOC (Alert and oriented x4) during my time of care. Met ☑ Unmet ☐

Problem #2: Impaired Gas Exchange: Anaphylactic Reaction

Patient Goals:

1. RD will demonstrate a RR between 12-20 and an SpO2 ≥95% on 2L NC during my time of care. Met ☑ Unmet ☐
2. RD will demonstrate normal breath sounds (soft and breezy) and report no dyspnea during my time of care. Met ☑ Unmet ☐

SOAP Notes Based on Priority Problems

Priority Patient Problem #1: Decreased Cardiac Output: MI and Cardiogenic Shock

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:** -Upon arrival to ED (12/7, 1655): Unrelenting chest pain/squeezing that didn't go away with nitroglycerin use (8/10). Reports that he "doesn't feel well" and was outside shoveling snow when pain started. Reports SOB, stomach "sickness", dizziness -After cath lab procedure (12/7, 2100): Reports "sitting on something wet" -Upon arrival to administer norepinephrine drip (12/8, 2000): Reports "I need something to make me feel better", and is "sweaty and dizzy" After administration of norepinephrine: reports: "not as dizzy or sweaty anymore" **PMH:** CAD, HTN, prior smoker (quit 1 month ago), Asthma, Stable angina (uses nitroglycerin sublingual) **Allergies:** PNC, peanuts, sulfa (later on contrast dye and shellfish were found to be an allergy) **Current Medications:** Nitroglycerin sublingual tablets, Lisinopril 10mg PO daily, ASA 325 mg PO daily, Albuterol inhaler 2 puff prn asthma.
Objective: *This section is your clinical observations. Include, pertinent vital signs, pertinent labs and diagnostics related to priority problem.*	**Vital Signs:** ED arrival (12/7, 1655): HR:104, RR:26,BP96/58,SpO2:94% 4L NC. Post cath lab procedure: 36.0C, HR:96, RR:14,O2 Sat: 98% 2L NC, Arterial BP: 114/70; 2 days Post Procedure: RR:12, HR: 96, BP:88/56, 99% 3L NC Upon Dobutamine administration (12/8, 1950) VS: HR: 64, BP: 64/42, RR:8, Arterial BP: 66/42, O2 Sat: 92% 4L NC Upon Norepinephrine drip admin (12/8, 2000) VS: HR: 58, RR: 12, BP: 78/56 (= to arterial BP), SpO2: 96% 4L NC After norepinephrine and dobutamine administration (12/8, 2040) VS: HR: 64, RR: 14, SpO2: 2L NC, Arterial BP: 96/58 Transfer to Cardiac Stepdown (12/9, 1900): HR: 68, Temp:36.8, RR:12, BP 124/72, SpO2: 98%RA **Labs:** Troponin T: (12/7, 1745) 0.2ng/mL, (12/7, 2145) 0.4ng/mL, (12/8, 0100) 0.6ng/mL, (12/8, 0400) 0.8ng/mL, (12/9, 0800) 0.6ng/mL; Lactic Acid venous: (12/7, 1745) 0.6mmol/L, aPTT: (12/7, 1745) 34 sec, (12/8,0600) 32sec. K+: (12/7, 1745) 3.6 (12/8, 0600) 3.2, (12/9, 0800) 3.4; Creatinine: (12/7, 1745) 0.8 **Diagnostics:** ED arrival (12/7, 1644) EKG showed ST elevation (STEMI) – blockage of the LAD, CXR: no fluid or pneumothorax; Post cath lab procedure (12/7, 2100): EKG: NSR with PVCs

	2 days post procedure: LV wall damage due to STEMI. MAP: 54, agitated and restless, Arterial BP: 88/54, Tele: tachycardia with PVCs, UO: 48mL/hr
Assessment: *Focused assessment on your priority problem.*	Male, 54 years old, 110kg ED arrival (12/7, 1644): dyspnea noted, RR elevated (RR:26) and other abnormal VS (see objective data VS). Post cath lab procedure (12/7, 2100): Right groin site clean and dry, no hematoma or bleeding present. Later (12/7, 2205): 3 inch Hematoma formation at right groin site. Dressing saturated with bright red drainage. 2 days post procedure: Mental status: agitated and restless; decreased UO (48mL/hr). (See objective data for abnormal VS).
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:** -ED arrival: Place IV and KVO (NS 12 mL flush for saline lock CVP line and peripheral IV line) Administer morphine (2mg IVP prn q 4hours for moderate pain) for pain, anxiety, vasodilation; O2 therapy to maintain Sats (maintain Sats 96% or greater via NC or nonrebreather), Collect: troponins and EKGs serially and CBC, Chem 7, Creatinine levels; STEMI identified on EKG: Cardiac cath with angioplasty and stent placement (Right femoral artery used) Post Procedure (12/7, 2205): Assess right groin site for bleeding/hematoma. 3 inch Hematoma formation at site is discovered – RN holds pressure and bleeding discontinues. Traces outline of bleeding on bandage to monitor. Low K+ (3.2) – administered K+ supplement 20mEq PO BID to prevent dysrhythmias and worsening CO 2 Days post procedure: Damage to LV wall with LAD STEMI. MAP: 54, agitated and restless, Arterial BP: 88/54, Tele: tachycardia with PVCs – concerned for LV HF and cardiogenic shock; UO: 48mL/hr; NI: (12/8, 1945) administered NS 250mL/hr 1000mL bag (increase to 1000mL over 1 hour prn for SBP< 90). (12/8, 1950) Administered Dobutamine Drip 250mg in D5W initial rate 2.5mcg/kg/miL titrate prn. (12/8, 2010) Administered Norepinephrine 4mg in D5W 1000mL at 0.5-1 mcg/min, (max dose: 30mcg/min) IV drip via central line 12/9, 0900: Administered Lisinopril 10mg PO & Amlopidine 5mg PO **Teaching/Resources:** -Educated on cardiac cath with angioplasty and stent procedure -Post procedure: Educated on importance of laying flat, not moving right LE, and splinting right groin insertion site when coughing -Educated about the importance of adhering to sodium restriction (1500mg/day) and reading food labels as well as avoiding fast

	foods, exercising, losing weight, and reducing red meat consumption.

Priority Patient Problem #2: Impaired Gas Exchange: Anaphylactic reaction

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:** -Post Procedure (12/7, 2100): Reports: "itchy arms and chest", reports previous consumption of shrimp resulting in "swollen tongue." Reports: coughing frequently and "stuffy nose", states "I cannot catch my breath" 12/7, 2155: Reports no longer itchy and states "feels better".
Objective: *This section is your clinical observations. Include vital signs, pertinent labs and diagnostics related to priority problem.*	**Vital Signs:** Post procedure (12/7, 2115): RR:32, SpO2: 94% 2L NC, HR: 112, BP: 148/94; Later (12/7, 2120): RR:32, HR: 116, BP:155/98, SpO2: 87% non-breather mask **Labs:** N/A **Diagnostics:** N/A
Assessment: *Focused assessment on your priority problem.*	12/7, 2100: Lung sounds: wheezing, dyspnea noted, SOB, RR elevated (32) with decreased SpO2 (87% on non-breather mask); Appearance is unwell. Frequent nonproductive cough and increased work of breathing. Skin ashen, nail beds dusky, distressed, stridor noted.
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:** Nursing Interventions (completed based off information in subjective and objective data as well as assessment): 12/7, 2100: Alerted physician to allergic response to contrast dye. Alerted Rapid response team. 12/7, 2110: Administered Diphenhydramine 25mg IV bolus prn q4 hours itching or restlessness. 12/7, 2120: Applied Non-rebreather face mask at 15L/min 12/7, 2130: Administered Epinephrine 0.3mg IM PRN q10-15 mins 12/7, 2155: Applied Oxygen 3L/min NC 12/7, 2157: Documented allergy to contrast dye and shellfish **Teaching/Resources:** -Educated on importance of alerting future healthcare providers on allergy to shellfish/ contrast dye to prevent allergic reaction occurring again.

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?

The biggest "take-away" from participating in the care of this client is the importance of critical thinking and focused assessments. This client began to experience cardiogenic shock after an MI and the RN utilized a focused assessment and critical thinking to recognize this change in condition so that the client experienced prompt treatment and a positive outcome. This will impact my nursing care as this experience has highlighted the importance of gathering data, utilizing critical thinking skills to draw conclusions, and providing exceptional care.

Time Allocation: 8 hours

Module Report

Tutorial: **Real Life RN Medical Surgical 4.0**

Module: **Myocardial Infarction Complications**

Individual Name: **Sara Wallace**

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	3/1/2023 1:33:27 PM	32 min	Strong

Reasoning Scenario Details
Myocardial Infarction Complications - Use on 3/1/2023 1:01:38 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 assess for a history of allergies to contracts dye or shellfish. Nurse Carl should also assess for further signs of an allergic reaction including a skin rash and also assess for adventitious breath sounds which could indicate an allergic response. Nurse Carl should alert the provider to a possible allergy to contrast dye and allergic reaction as well.
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.

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) 1,000 mcg275 mcg/min = 1 mg*X* mg/min *X* mg/min = 0.275 mg/min Yes (min does not equal hr) 60 ~~min~~*X* mg/hr = 1 hr0.275 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. *HaveDesired = QuantityX250 mg16.5 mg/hr = &#160250 mLX 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)* *275 ~~mcg~~ × 1 mgX mg = 1,000 ~~mcg~~* *X mg/min = 0.275 mg/min* *Yes (min does not equal hr)* *0.275 mg × 60 ~~min~~X mg = 1 ~~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.* *Desired × QuantityX = Have16.5 ~~mg~~ × 250 mLX mL/hr = &#160250 ~~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.)* *250 mLX mL/hr = &#160250 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 mL1 ~~mg~~2.5 ~~mcg~~110 ~~kg~~60 ~~min~~X mL/hr = × × × × &#160250 ~~mg~~1,000 ~~mcg~~1 ~~kg~~1 ~~min~~1 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.

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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Score Explanation and Interpretation
Individual Performance Profile

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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