TYPICAL CHEST PAIN MALE

Estimated Time: 60 minutes • Debriefing Time: 60 minutes

Scan to Begin

Patient Name: Michael I. Milbourn

SCENARIO OVERVIEW

Michael L. Milbourn is a 69-year-old male in Intermediate Cardiac Care who underwent a Coronary Artery Bypass Grafting (CABG) surgery yesterday. Students implement standard post-op CABG orders and intervene when a post-op complication of worsening atrial fibrillation occurs.

LEARNING OBJECTIVES

1. Administer cardiac related medications safely
2. Interpret a basic ECG pattern
3. Incorporate evidence-based practice and prioritize interventions while caring for a patient post- Coronary Artery Bypass Grafting (CABG) surgery
4. Communicate therapeutically with a patient experiencing an acute health care crisis
5. Report complete, accurate and pertinent information to the health care team

CURRICULUM MAPPING

WTCS NURSING PROGRAM OUTCOMES

- Implement one's role as a nurse in ways that reflect integrity, responsibility, ethical practices, and an evolving professional identity as a nurse committed to evidence-based practice, caring, advocacy and quality care
- Demonstrate appropriate written, verbal, and nonverbal communication in a variety of clinical contexts
- Integrate social, mathematical, and physical sciences, pharmacology, and pathophysiology in clinical decision making
- Provide patient centered care by utilizing the nursing process across diverse populations and health care settings
- Minimize risk of harm to patients, members of the healthcare team and self through safe individual performance and participation in system effectiveness
- Lead the multidisciplinary health care team to provide effective patient care throughout the lifespan
- Use information and technology to communicate, manage data, mitigate error, and support decision-making

PHARMACOLOGY

- Apply components of the nursing process to the administration of cardiovascular drugs

NURSING FUNDAMENTALS

- Maintain a safe, effective care environment for adults of all ages
- Use appropriate communication techniques
- Use the nursing process
- Provide nursing care for patients with comfort alterations
- Adapt nursing practice to meet the needs of diverse patients in a variety of settings

HEALTH ALTERATIONS

- Plan nursing care for patients undergoing surgery (post-operative)

COMPLEX HEALTH ALTERATIONS 1

- Evaluate nursing care for patients with coronary artery disease

ADVANCED SKILLS

- Interpret basic electrocardiogram patterns

COMPLEX HEALTH ALTERATIONS 2

- Evaluate nursing care for patients with critical/life threatening situations

SIMULATION LEARNING ENVIRONMENT & SET-UP

ENVIRONMENT

Inside room: Patient in bed with several pieces of equipment attached (see below), Intermediate Care setting

Inside or outside room: Hand sanitizer or sink

Outside room: Defibrillator for synchronized cardioversion, Medications with QR labels

PATIENT PROFILE

Name: Michael I. Milbourn

DOB: 09/18/19XX

Age: 69

MR#: 1720

Gender: Male

Height: 185 cm (73 inches)

Weight: 115 kg (253 lbs)

Code Status: Full code

Spiritual Practice: Christian, Protestant

Ethnicity: African American

Primary Language spoken: English

Allergies: NKDA

Admitting Diagnosis: Angina (I20.1)

Chronic Medical Diagnoses: Hypertension (I10), Hyperlipidemia (E78.5), Diabetes Mellitus Type 2 (E11.9), Coronary Artery Disease (I25.10)

EQUIPMENT/SUPPLIES/SETTINGS

Patient

- Hospital gown with nasal cannula at 2 lpm
- ID band with QR code
- Telemetry leads on chest
- Blood pressure cuff in place
- Triple lumen catheter in right internal jugular vein
- Arterial line in right radial artery
- ABD pad over midsternal incision

- Pacing wires wrapped and taped in gauze
- Chest tube with 1000 ml bloody drainage
- Blake drains with serous fluid present
- Foley catheter with dark yellow urine (100 ml)
- ACE wraps on bilateral legs to thighs
- Sequential compression devices on legs

Monitor Settings

- On cardiac monitor with pulse oximetry
    - Controlled atrial fibrillation with ventricular rate in the 80's
- Cardiac monitor also displaying vital signs
- BP 118/74, P 76, RR 18, O2 95%, T 37.8C, Pain: 8/10

Supplies

- General
    - Phone
    - Heart pillow to splint incision after surgery
    - Equipment to obtain 12 lead ECG
- Medications (realistic labels are available by scanning the QR code)
    - Aspirin chewable tablets 81 mg
    - Clopidogrel 75 mg PO
    - Atorvastatin 40 mg
    - Metoprolol (Lopressor) 25 mg PO
    - Docusate 100 mg PO
    - Polyethylene glycol 3350 1 packet
    - Fleet Enema
    - Hydrocodone/Acetaminophen 5/325 tablets
    - Acetaminophen 650 mg PO
    - Ondansetron 4 mg IV

- Heparin 5000 units subq
- Regular Insulin subq
- Diltiazem for IVP
- Diltiazem IV bag and vial for IVP
- Heparin IV

QR CODES

START	PATIENT	REPORT	PATIENT ID
ASPIRIN	CLOPIDOGREL	METOPROLOL PO	ATORVASTATIN
DOCUSATE	POLYETHYLENE GLYCOL	FLEET ENEMA	ACETAMINOPHEN
ONDANSETRON IV	HYDROCODONE/ ACETAMINOPHEN	HEPARIN SUBQ	REGULAR INSULIN

DILTIAZEM IV	HEPARIN IV	DILTIAZEM IVP	

TEACHING PLAN

PREBRIEF

The facilitator should lead this portion of the simulation. The following steps will guide you through Prebrief.

- Scan the **QR code:** "**Scan to Begin**" while students are in Prebrief
- "Meet Your Patient" (on iPad) and explain how the iPad works in the simulated learning environment including:
    - Explain how to use the iPad scanner and QR codes. Remind students that there are multiple QR codes in the simulation, but they should only scan them if they think it will provide data necessary for their assessment and evaluation of the patient.
    - For some scenarios, it may be helpful to tell students where the QR Code are located. For others, you may want students to "find" the QR Codes during their assessments. This is your choice.
    - Describe how a QR Code sound will work in the scenario. Show them how to use the ARISE "stethoscope" and the symbol on the QR Code that signifies when a QR Code is audio 🔊. Example: **QR Code: Chest** 🔊
    - As the facilitator, you should be aware that throughout the simulation some QR codes are necessary to the programming of the iPad content. Directions for which QR codes are required (to be scanned) in each state are listed under each state of the documentation below. The QR codes are also in **BOLD** type.
- Discuss the simulation "Learning Objective(s)" (on iPad) as well as any other Prebrief materials
- Get "Report" (on iPad)
    - Possible Facilitator Question
        - What are your priority focused assessments based on what you heard in report?
- Play the "Patient" video (on iPad)
    - Possible Facilitator Question
        - What are your priority assessments and interventions based on the patient's statements?

- Advance to the “Patient Profile” screen (on iPad). This will act as a simulated patient chart.
- Students can view the tabbed content on the iPad (see below) prior to entering the patient’s room and throughout the simulation as needed.
    - You should give student some time (5 minutes) to review this content now, prior to entering the patient’s room.
- Now, students can enter the room and begin the next state of the simulation.

HISTORY & PHYSICAL

Name: Michael I Milbourn

MR#: 1720
DOB: 09/18/19XX

CC/HPI: Michael walked into the Urgent Care clinic complaining of chest pain asking the staff, "Should I take my Nitroglycerin?" 911 was called as he took his own Nitroglycerin tabs sublingually x 3 doses. Aspirin was administered in the ambulance as he was brought to the Emergency Room complaining of chest pain "like a truck is sitting on my chest" with shortness of breath and diaphoresis. A STAT EKG was ordered which demonstrated an inverted T wave indicating ischemia.

PAST MEDICAL/SURGICAL HISTORY: Michael has a history of hyperlipidemia, diabetes mellitus Type 2, hypertension, and coronary artery disease documented on a coronary angiogram last week. Michael had scheduled an elective coronary artery bypass surgery for next week.

ER/HOSPIALIZATIONS IN THE LAST 12 MONTHS: None

MEDICATIONS: Atorvastatin 40 mg daily, Metoprolol XR 50 mg daily, Clopidogrel 75 mg daily, Metformin 500 mg daily, Lisinopril 10 mg daily, Aspirin 81 mg daily, Nitroglycerin 0.4 mg prn

ALLERGIES: NKDA

FAMILY MEDICAL HISTORY: Father had MI age 65

REVIEW OF SYSTEMS: Abbreviated due to acuity of current medical condition.

HEENT: Denies injury, change in level of consciousness, or headaches or change in vision.

Respiratory: Complains of mild shortness of breath that started with chest pain.

Cardiovascular: Chest pain started this afternoon when he was working in the yard. No history of murmur or valve disorder. History of hypertension, hyperlipidemia and coronary artery disease documented on coronary angiogram last week. He received a prescription for Nitroglycerin at that time but reports he "never took it because the pain usually goes away if I stop and rest."

Peripheral Vascular: Denies claudication, leg cramps, parasthesias or edema.

Gastrointestinal: Denies change in appetite, weight gain/loss.

Endocrine: History of diabetes mellitus treated with metformin. Denies polydipsia or polyuria.

PHYSICAL EXAM:

Vital signs: BP 170/96, P 120, RR 24, O2 93%, T 37.5C (99.5F), Pain: 8/10

height= 157 cm (5'2), weight= 72 kg
Pain Scale 9/10

General Appearance: 69-year-old male who appears stated age and is well developed, well hydrated, and well nourished. Maintains good eye contact and interacts appropriately. Is alert and oriented x 3.

HEENT: unremarkable

Integument: Normal turgor.

Respiratory/Chest: Breath sounds clear. No wheezes, rales or crackles. Minimal effort. No cyanosis or clubbing.

Cardiovascular: Regular S1S2 rhythm without murmur.

Vascular/extremities: Pedal pulses – L 2/4 / R 2/4 Capillary refill time less than three seconds. Extremities normal color. No edema.

Gastrointestinal/abdomen: Bowel sounds positive in four quadrants.

Genitourinary: No CVA tenderness.

Recent Labwork: STAT ECG shows NSTEMI with T wave inversion. Awaiting cardiac enzymes.

ASSESSMENT/PLAN: STAT Cardiologist consult.

Electronically Signed - Dr. Bernard, MD

ORDERS

Orders

Patient Name: Michael I. Milbourn
DOB:09/18/19XX Weight(kg):115
MR#: 1720
Provider: Dr. Bernard
Allergies: NKDA

Date	Time	Order
Yesterday	0900	CK-MB, Troponin, CBC, Electrolytes, BUN, Creatinine, Glucose, Magnesium, INR, PTT STAT
		12 lead ECG STAT and notify provider of results
		Chewable non-enteric coated aspirin 325 mg PO STAT if not already given by EMS
		If O2 sat < 94%, start O2 via NC at 4 L and titrate prn
		Nitroglycerin 0.4 mg Sublingually q 5 mins for 3 doses PRN for chest pain if not already given by EMS
		Cardiology consult STAT
		Continuous cardiac monitoring and oximetry
		Portable AP Chest Xray STAT
		Nitroglycerin continuous intravenous infusion. Start at 5 mcg/min and increase by 5 mcg every 5 minutes up to 20 mcg/min until response noted while maintaining SBP > 100
		Morphine 2 mg IV every 5 minutes PRN for unrelieved chest pain
		----------Dr. Bernard, M.D.
Yesterday	0915	Prepare for Multivessel Coronary Artery Bypass Grafting
		Surgical Pre-Operative Order Set: Adult Cardiac Surgery • Informed consent • Rescuscitation Status: Full rescuscitation • Vital signs q 15 minutes • Notify MD/PA if greater than 30 mm difference in the blood pressure between the arms

- Call Anesthesia if glucose less than 90 or greater than 180
- NPO
- Order Heart Teaching pillow and instruct on how to support sternum
- Surgical prep: complete hair clipping and apply surgical wash to axilla, groin and surgical sites after hair clipping
- Remove all jewelry
- Urinary catheter continuous, Indication: Peri-op Management
- Initiate CV Surg Insulin Infusion order if pre-op blood sugar is greater than 140
- Page chaplain ASAP to notify of surgery date/time
- If patient is on a beta blocker, confirm patient took AM dose. IF patient did not take AM beta blocker, contact provider for orders
- Incentive spirometry: Instruct patient and record maximum IS effort
- Labs: Hemoglobin A1C, Type and screen
- Chest Xray
- Medications:
    - Mupirocin topical (Bactroban 2% nasal ointment), one-half tube, both nostrils
    - Cefazolin (Ancef): give within 60 minutes or less prior to incision
        - 1 gram for patients weighing 60 kg or less
        - 2 grams for patients weighing 60.1 – 119.9 kg
        - 3 grams for patients weighing 120 kg or greater

CV Surg Insulin Infusion order

Regular Insulin Infusion 100 units in 100 ml NS prn for pre-op blood sugar > 140

Glucose Level	Insulin drip rate units/hr
140-199	1
200-299	2
300-399	3
400-499	4
>500	5 and call provider

		---------- Dr. Forssmann, M.D.
Today	One hour ago	Implement CV Surgery Intermediate Care Post-Op Order Set
		---------- Dr. Forssmann, M.D.
		CV Surgery Intermediate Care Post-Op Order Set • Telemetry • If worsening dysrhythmia or chest pain: obtain 12 lead ECG STAT and notify provider. • Vital signs and pulse oximetry q4 hours • Intake and Output every 8 hours • Weight daily • Notify provider if: temperature > 38.6C; HR > 120 or < 50; SBP < 90; new or worsening dysrhythmia; if oxygen > 5L/min is required to maintain SaO2 > 90% • If temp > 38.6 place following orders and obtain STAT: Blood culture x 2, Urine culture, sputum culture, Portable CXR and CBC • If new onset chest pain or dysrhythmia: STAT ECG Activity/Positioning • Follow Physical Therapy protocol • Up with assist. Ambulate 4 times daily. Up in chair as frequently as possible and encourage for meals. Walk up/down stairs prior to discharge. • Elevate legs at all times when sitting in chair • Enforce rest period after activity and monitor room for too many/too frequent visitors • Shower beginning on POD #3 if hemodynamically stable. Use antibacterial soap. • Sequential Compression Devices on while in bed Diet/Nutrition • Advance diet as tolerated. • Diet: low cholesterol, low fat, carbohydrate controlled, no added salt

			Patient Care • Encourage cough and deep breathing • Sternal and leg incisions: clean daily with saline to remove dried secretions; apply 4x4 gauze dressing loosely to areas with continued drainage; change when wet • Chest Tube: Change dressings daily for excessive drainage until all tubes are discontinued. Place sterile 4x4 gauze over wound and tape in place • Pacer wire insertion sites: Cover each set of wires with transparent dressing; change PRN only • Blake drains: Change site dressings daily and PRN. Label drains from right to left and number consecutively with permanent marker • Remove ACE wraps/coban on lower extremity on POD #2 and apply knee high TED hose. Keep on bilateral legs during day and off at night • Discontinue IJ Sheath on POD #3 • Temporary Pacemaker settings (for HR<60/min): Mode: WI; Output: 10mA, Sensitivity: 1 MV • Foley urinary catheter to gravity. Indication: Peri Op Management (less than 48 hours post op) • Once Foley catheter removed: If patient unable to void or complains of bladder discomfort obtain bladder scan. Straight catheterize every 8 hours PRN if unable to void. Replace indwelling catheter if greater than 300 ml residual or second straight cath • Incentive Spirometry every 1 hour while awake • Oxygen therapy PRN, if SaO2<90% start oxygen via nasal cannula at 2L/min. Titrate to maintain SaO2 >89% • Saline lock IV when tolerating intake without nausea and vomiting. Maintain at least one site.

Medications

- Discontinue Heparin IV
- Discontinue Morphine PCA pump
- Aspirin 81 mg PO daily. First dose today.
- Clopidogrel 75 mg PO daily. First dose today.
- Metoprolol 25 mg PO two times daily. First dose today. Hold if SBP<90 or HR < 60 off pacer
- Atorvastatin 40 mg daily at bedtime
- Docusate 100 mg PO three times daily. First dose today. Hold if loose stools
- Polyethylene glycol 3350 1 packet PO PRN constipation
- Fleet Enema 1 enema PR once daily PRN for constipation
- Hydrocodone/acteminophen 5/325 2 tablets PO every 4 hours PRN for pain. No more than 4,000 mg Acetaminophen per 24 hours
- Acetaminophen 650 mg PO every 4 hours PRN for pain rated 1-6 or temp 38.5 C or higher. No more than 4,000 mg Acetaminophen per 24 hours
- Ondansetron 4 mg IVP every 6 hours PRN for nausea
- Heparin 5000 units subcutaneous every 8 hours. Start POD#2.
- Maintain CV Surg Insulin Infusion order through POD #3 am.

Laboratory

- Chem 7 daily times 2 days
- CBC daily times 2 days

---------- Dr. Forssmann, M.D.

Continue >

MAR

Facilitator Note: Students may click on each underlined medication for a hyperlink with medication information provided by National Library of Medicine.

MAR

Patient Name: Michael I. Milbourn
DOB:09/18/19XX Weight(kg):115
MR#: 1720
Provider: Dr. Bernard
Allergies: NKDA

Order	Sch. Time	Dose
Chewable non-enteric coated aspirin 81 mg four tabs PO STAT	Given yesterday 0900	
Nitroglycerin 0.4mg sublingually q5 minutes for 3 doses prn for chest pain	Given yesterday 0900, 0905, 0910	
0.9% NS at TKO rate		
Nitroglycerin IV infusion. Start at 5 mcg/min. Increase by 5 mcg every 5 minutes, up to 20 mcg/min, until response noted while maintaining SBP > 100	Given yesterday 0915 5 mcg, 0920 10 mcg, 0925 15 mcg, 0930 20 mcg, 0930 15 mcg, Infusion ended 1100	
Morphine 2 mg IV every 5 minutes prn	Given yesterday 0930	
Mupirocin topical (Bactroban 2% nasal ointment), one-half tube, both nostrils	Given yesterday 1000	

Cefazolin (Ancef): give within 60 minutes or less prior to incision 1 gram for patients weighing 60 kg or less 2 grams for patients weighing 60.1 - 119.9 kg 3 grams for patients weighing 120 kg or greater	Given yesterday 1030	
Regular Insulin Infusion 100 units in 100 ml NS prn for pre-op blood sugar > 140 **Glucose level** / **Insulin drip rate units/hr** 140-199: 1 200-299: 2 300-399: 3 400-499: 4 >500: 5 and call provider	2 units/hr drip, started 1030 yesterday	
Aspirin 81 mg PO daily		
Clopidogrel 75 mg PO daily		
Metoprolol PO 25 mg twice daily. Hold if SBP < 90 or HR < 60 off pacer		
Atorvastatin 40 mg PO daily at bedtime		
Docusate 100 mg PO three times daily. Hold if loose stools.		
Heparin 5000 units subcutaneously every 8 hours starting POD #2		
PRN Medications		
Polyethylene glycol 3350 1 packet PO PRN daily for constipation		
Fleet Enema 1 enema PR daily PRN for constipation		
Hydrocodone/acteminophen 5/325 2 tablets PO every 4 hours PRN for pain. No more than 4,000 mg Acetaminophen per 24 hours		
Acetaminophen 650 mg PO every 4 hours PRN for pain rated 1-6 or temp 38.5 C or higher. No more than 4,000 mg Acetaminophen per 24 hours		
Ondansetron 4 mg IVP every 6 hours PRN for nausea		

Continue >

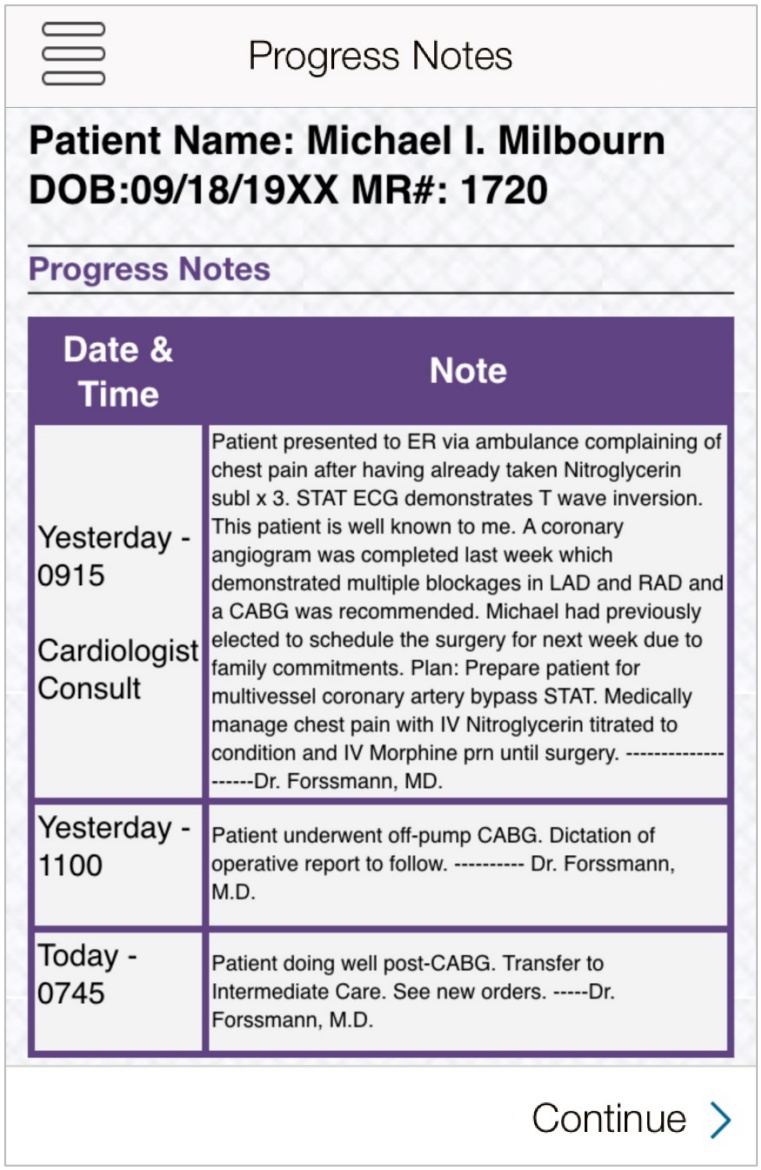
NURSING | LEVEL: 4

VITALS

This is the “enterable” vitals screen.

- Facilitator Note: Students can enter vitals here (They are not tied to any iPad programming.).

PROGRESS NOTES



LAB-DIAGNOSTICS

Labs-Diagnostics

Patient Name: Michael I. Milbourn **DOB:** 09/18/19xx **MR#:** 1726

Chem 7* and Magnesium

Date	Yesterday	Today	Units	Reference Range
Time	0900	2 hrs ago		
*Glucose	210	163	mg/dL	Fasting 70-105
*BUN	28	20	mg/dL	10-25
*Creatinine	1.8	1.8	mg/dL	F: 0.4-1.4/M: 0.5-1.5
*Sodium	144	135	mEq/L	135-145
*Potassium	3.6	3.5	mEq/L	3.5-5.3
*Chloride	98	100	mEq/L	98-108
*Calcium	8.6	8.7	mg/dL	8.5-10.5
Magnesium	1.8	1.7	mEq/L	1.5-2.4

CBC with Differential

Date	Yesterday	Today	Units	Reference Range
Time	0900	2 hrs ago		
WBC	8.0	12.2	$x10^3uL$	4.5-11
RBC	5.1	4.2	$x10^6uL$	F: 4.2-5.4/M: 4.6-6.2
HgB	15.1	11.1	g/dL	F:13.0-15.0/M:14.0-17.0
HCT	45.3	33.7	%	F: 38-47/M: 42-52
MCV	85.3	86	fL	80-90
MCH	27.8	28.2	pg	27-32
MCHC	33.6	34	g/dL	32-36
RDW	13.2	13.3	%	11.5-14.5
Platelet	224	168	$x10^9uL$	150-450
MPV	7.8	6.8	fL	6.0-12.0
Neutro	60	80	%	40-70
Lymph	24	25	%	22-40
Mono	2.3	2.4	%	1-10
Eos	1.4	1.5	%	1-7
Baso	0.8	1.1	%	0-2

Cardiac Enzymes

Date	Yesterday		Units	Reference Range
Time	0900			
CK-MB	10.0		Ng/ml	0.0-5.0
Troponin	5.1		ug/L	0.0-0.1

Coagulation

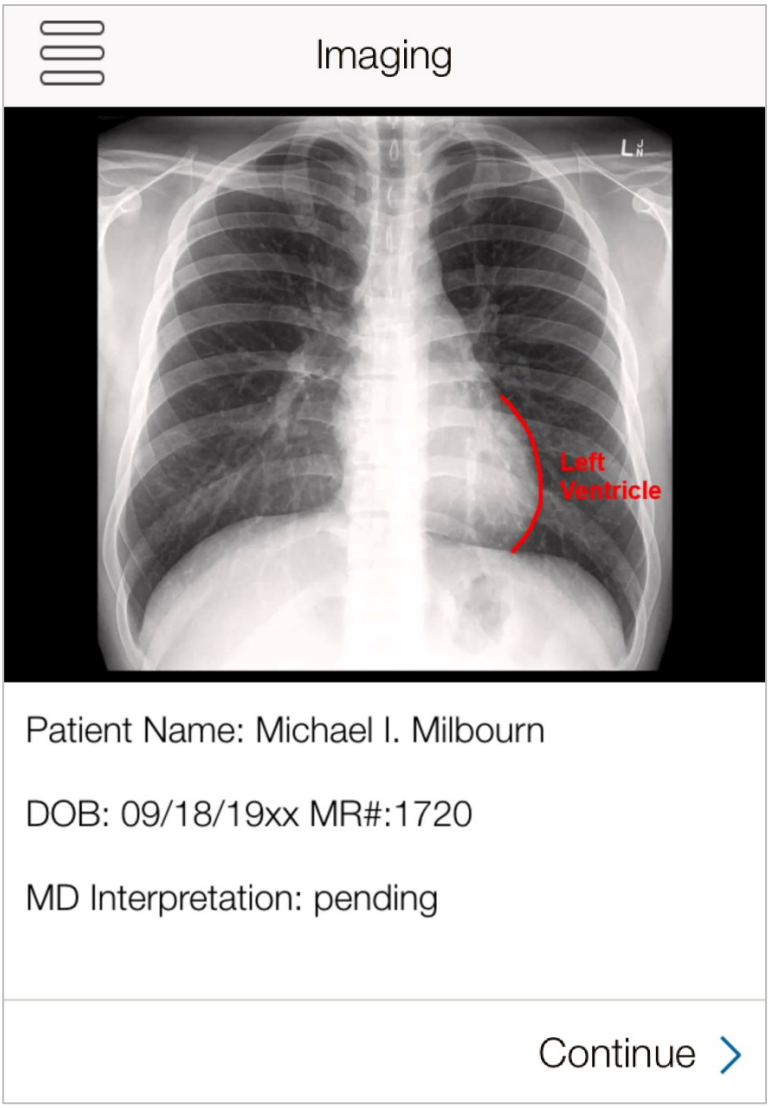
Date	Yesterday		Units	Reference Range
Time	0900			
PT	11.2		seconds	11-12.5
INR	1.0			1.0
aPTT	27			Less than 35

Arterial Blood Gas (ABG)				
Date		Today	Units	Reference Range
Time		2 hrs ago		
pH		7.36	units	7.35-7.45
$PaCO_2$		42	mmHg	35-45
PaO_2		92	mmHg	80-100
HCO_3		25	mmol/L	22-26
Base Excess (BE)		0	mmol/L	0+/-3
SaO_2		95	%	
FIO2		21	%	

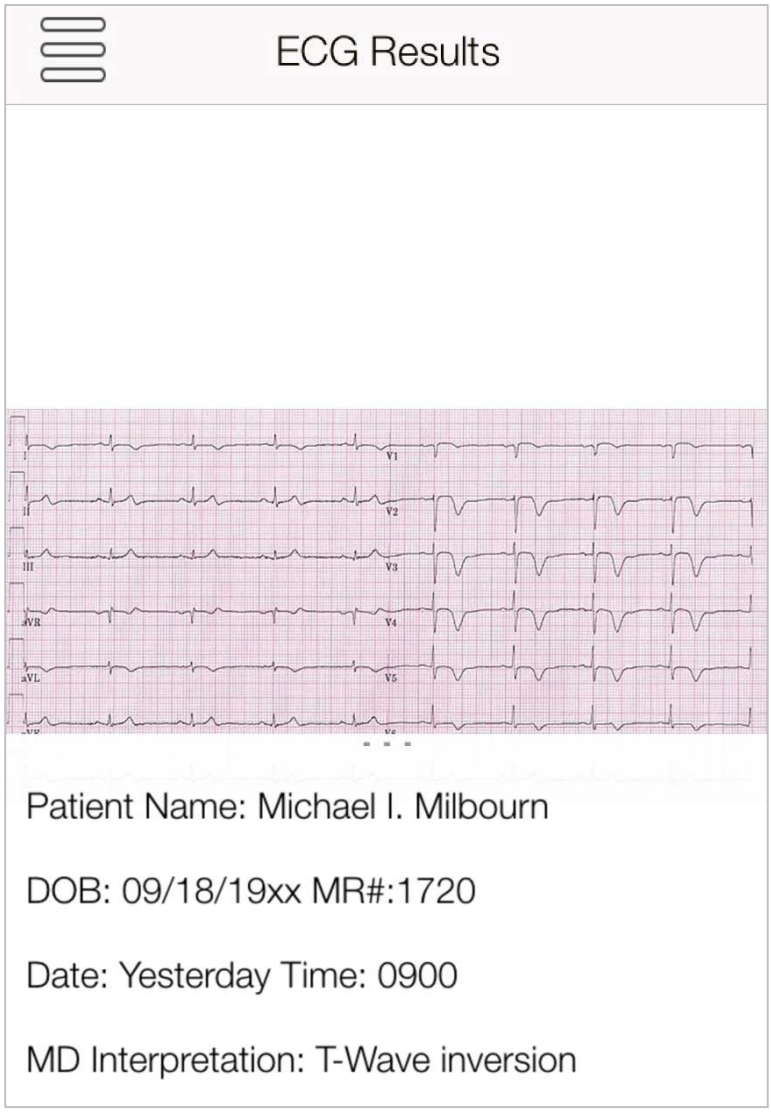
Miscellaneous				
Date	Yesterday		Units	Reference Range
Time	0930			
Hemoglobin A1C	9.2		%	6.9%-8% good diabetic control
Blood Type	O+			

Continue

IMAGING


Imaging
Left Ventricle
Patient Name: Michael I. Milbourn
DOB: 09/18/19xx MR#:1720
MD Interpretation: pending
Continue

ECG RESULTS



SCANNER

STATE 1

ASSESS PATIENT & IMPLEMENT ORDERS

- Patient Overview
    - Patient is slightly drowsy and concerned about "all the tubes coming out of me." He is worried about if his wife will "be able to handle all of this."
    - He is slightly hungry and wondering if he can eat (Note: report stated that he has an NG tube in place but it was removed just prior to this shift starting.) Students must decide if he can progress in his diet. If asked, he should report he has "passed gas." Bowel sounds are present. Clear liquids would be the next step, but if given he starts to complain of nausea then the students should administer ondansetron prn.
    - Morphine PCA was just discontinued prior to shift starting. Students should assess his pain and when he rates it as "8," they should administer hydrocodone/acetaminophen 2 tabs.
- Expected Student Behaviors
    - Introduce themselves
    - Verify the patient ID (Students may scan **QR Code: Patient ID**)
    - Assess the patient with focused post-op concerns including: vitals, oximetry, telemetry, pain, neuro, cardiac, lungs, GI, GU, incisions, chest tube, Foley, Blake drains, IJ site, IV sites
    - Prioritize and implement post-op orders
    - Monitor urine output throughout shift and eventually realize the patient has low urine output
    - Monitor cardiac status and intervene appropriately
    - Monitor blood glucose and intervene appropriately
    - Monitor pain status and intervene appropriately
- Technician Prompts
    - Patient is slightly drowsy, concerned, and moderately anxious. He is also slightly hungry.
    - Patient responses can include:
        - "There are just so many tubes coming out of me."

        - "How is my wife gonna handle all of these tubes when I go home?"
        - "Can I get something to eat?" "I'm feeling a little hungry."
    - If students ask about pain, patient responses can include:
        - "My chest hurts!"
        - The patient should rate his pain at (8/10) at the incision site.
    - If students ask about passing gas, patient responses can include:
        - "That's a weird question!"
        - When pressed, he will state he has "passed wind."
        - If students give him clear liquids, he should complain of nausea.
    - If students ask about his elevated glucose level/diabetes history, patient responses can include:
        - "I take Metformin at home."
- Possible Facilitator Questions
    - What are your concerns based on your assessment findings?
    - How will you prioritize the orders?
    - What are the rationale for each order and each medication?
    - Describe how you will monitor each piece of equipment and what complications you are monitoring for?
- Tabbed iPad Prompts & Content Changes
    - After **QR Code: Aspirin**, **QR Code: Clopidogrel**, **QR Code: Docusate** and **QR Code: Metoprolol** are scanned, the iPad automatically advances to State 2.

STATE 2

STATUS CHANGE: WORSENING AFIB

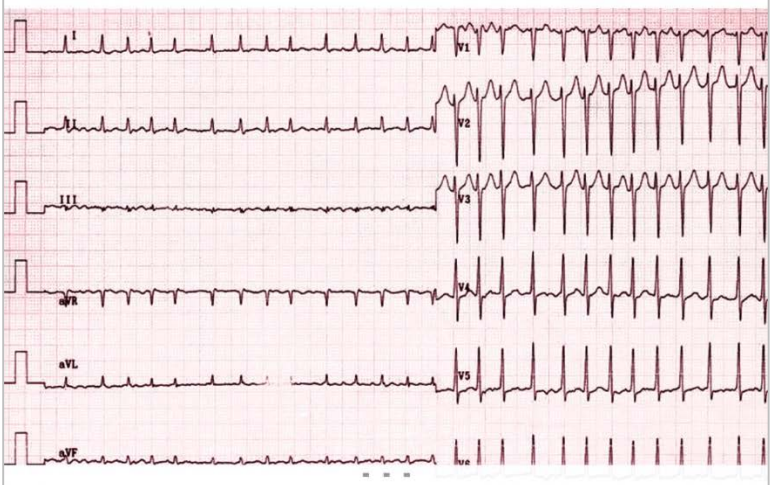
- Patient Overview
    - After students complete expected behaviors listed in State 1, the patient begins to complain of feeling “lightheaded” and then “palpitations” as he develops worsening atrial fibrillation.
- Expected Student Behaviors
    - Students should immediately recognize change in status and obtain a STAT 12 lead ECG
    - Student should notify cardiologist of worsening rhythm and new ECG results
- Technician Prompts
    - Cardiac monitor should change to worsening afib.
    - Vital signs change to: HR 140, BP 109/64, RR 20, T 37.8, O2 Sat 94%
    - Patient responses can include:
        - “I’m feeling a little lightheaded.”
        - “My heart feels like its skipping around.”
- Possible Facilitator Questions
    - Why is afib a common dysrhythmia after CABG surgery?
    - What is the difference between controlled afib and uncontrolled afib?
    - Are you noticing any signs of decreased cardiac output with the afib? Why?
- Tabbed iPad Prompts & Content Changes
    - The “ECG” tab automatically changes to the “ECG Placement” tab when the iPad advances from State 1 content to State 2 content.
    - ECG Placement
        - When the “ECG Placement” tab is tapped, the iPad will read, “ECG lead placement” and show a picture of proper ECG lead placement.

- Then, the “ECG Placement” tab automatically changes to an “ECG Results” tab.

- ECG Results
  - When the ECG Results tab is tapped, the iPad shows an ECG with afib.
    - The iPad ECG results state, “MD Interpretation: pending”
    - The image of this ECG is zoomable.
    - When students leave the ECG results tab by going back to the menu, the iPad automatically reads, “New orders received.”

ECG RESULTS

ECG Results



Patient Name: Michael I. Milbourn

DOB: 09/18/19xx MR#:1720

MD Interpretation: Pending

STATE 3

NEW ORDERS FROM CARDIOLOGIST

- Patient Overview
    - New orders are received from the cardiologist for: IVP diltiazem, IV infusion of diltiazem titrated to symptoms, IV heparin, and to prepare for synchronized cardioversion
- Expected Student Behaviors
    - Administer Diltiazem IVP. Scan **QR code: Diltiazem IVP** to view label and to verify administration of medication.
        - Students should perform math calculation but then realize it exceeds maximum dose indicated and administer 20 mg (4 ml)
    - Administer Diltiazem IV infusion titrated to symptoms (Scan **QR Code: Diltiazem IV** to view medication label and to verify administration of medication.)
    - Administer Heparin IV medication (Scan **QR Code: Heparin IV** to view medication label and to verify administration of medication.)
        - Students should calculate dosage then realize it exceeds maximum dose of 1000 units/hour and administer 1000 units/hour or 20 ml/hr.
    - Students should explain what is happening to patient and explain the procedure of a synchronized cardioversion within the RN Scope of Practice.
- Technician Prompts
    - Patient responses can include:
        - "What's wrong with my heart?"
        - "Am I having another heart attack?"
        - "Will it hurt when they shock my heart?"
        - "Am I going to die?"
        - "Where's my wife? I want to see her."
- Possible Facilitator Questions

  - What is synchronized cardioversion? Will the patient be awake during this procedure? What are the nursing responsibilities associated with this procedure?
  - How does Diltiazem help improve this patient's condition?
  - Why is the Heparin infusion ordered?

- Tabbed iPad Prompts & Content Changes
  - After student's scan **QR Code: Diltiazem IV** and **QR Code: Heparin IV**, the Exit tab appears. It is optional for the facilitator to lead them through the synchronized cardioversion process in the simulation lab with a defibrillator.
  - When the Exit tab is tapped, the iPad reads, ""Are you sure you have completed the simulation? When you exit, all iPad progress is lost."
    - If "No" is selected, the iPad automatically returns to the tabbed content area.
    - If "Yes" is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

ORDERS

Orders

Patient Name: Michael I. Milbourn
DOB:09/18/19XX Weight(kg):115
MR#: 1720
Provider: Dr. Bernard
Allergies: NKDA

Date	Time	Order
Yesterday	0900	CK-MB, Troponin, CBC, Electrolytes, BUN, Creatinine, Glucose, Magnesium, INR, PTT STAT
		12 lead ECG STAT and notify provider of results
		Chewable non-enteric coated aspirin 325 mg PO STAT if not already given by EMS
		If O2 sat < 94%, start O2 via NC at 4 L and titrate prn
		Nitroglycerin 0.4 mg Sublingually q 5 mins for 3 doses PRN for chest pain if not already given by EMS
		Cardiology consult STAT
		Continuous cardiac monitoring and oximetry
		Portable AP Chest Xray STAT
		Nitroglycerin continuous intravenous infusion. Start at 5 mcg/min and increase by 5 mcg every 5 minutes up to 20 mcg/min until response noted while maintaining SBP > 100
		Morphine 2 mg IV every 5 minutes PRN for unrelieved chest pain
		----------Dr. Bernard, M.D.
Yesterday	0915	Prepare for Multivessel Coronary Artery Bypass Grafting
		Surgical Pre-Operative Order Set: Adult Cardiac Surgery • Informed consent • Rescuscitation Status: Full rescuscitation • Vital signs q 15 minutes • Notify MD/PA if greater than 30 mm difference in the blood pressure between the arms • Call Anesthesia if glucose less than 90 or greater than 180

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NPO
Order Heart Teaching pillow and instruct on how to support sternum
Surgical prep: complete hair clipping and apply surgical wash to axilla, groin and surgical sites after hair clipping
Remove all jewelry
Urinary catheter continuous, Indication: Peri-op Management
Initiate CV Surg Insulin Infusion order if pre-op blood sugar is greater than 140
Page chaplain ASAP to notify of surgery date/time
If patient is on a beta blocker, confirm patient took AM dose. IF patient did not take AM beta blocker, contact provider for orders
Incentive spirometry: Instruct patient and record maximum IS effort
Labs: Hemoglobin A1C, Type and screen
Chest Xray
Medications:

Mupirocin topical (Bactroban 2% nasal ointment), one-half tube, both nostrils
Cefazolin (Ancef): give within 60 minutes or less prior to incision

1 gram for patients weighing 60 kg or less
2 grams for patients weighing 60.1 – 119.9 kg
3 grams for patients weighing 120 kg or greater

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<td>CV Surg Insulin Infusion order

Regular Insulin Infusion 100 units in 100 ml NS prn for pre-op blood sugar > 140
<table>
<tr><th>Glucose Level</th><th>Insulin drip rate units/hr</th></tr>
<tr><td>140-199</td><td>1</td></tr>
<tr><td>200-299</td><td>2</td></tr>
<tr><td>300-399</td><td>3</td></tr>
<tr><td>400-499</td><td>4</td></tr>
<tr><td>>500</td><td>5 and call provider</td></tr>
</table>
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		----------Dr. Forssmann, M.D.
Today	1 hour ago	Implement CV Surgery Intermediate Care Post-Op Order Set ---------- Dr. Forssmann, M.D.
		CV Surgery Intermediate Care Post-Op Order Set • Telemetry • If worsening dysrhythmia or chest pain: obtain 12 lead ECG STAT and notify provider. • Vital signs and pulse oximetry q4 hours • Intake and Output every 8 hours • Weight daily • Notify provider if: temperature > 38.6C; HR > 120 or < 50; SBP < 90; new or worsening dysrhythmia; if oxygen > 5L/min is required to maintain SaO2 > 90% • If temp > 38.6 place following orders and obtain STAT: Blood culture x 2, Urine culture, sputum culture, Portable CXR and CBC • If new onset chest pain or dysrhythmia: STAT ECG Activity/Positioning • Follow Physical Therapy protocol • Up with assist. Ambulate 4 times daily. Up in chair as frequently as possible and encourage for meals. Walk up/down stairs prior to discharge. • Elevate legs at all times when sitting in chair • Enforce rest period after activity and monitor room for too many/too frequent visitors • Shower beginning on POD #3 if hemodynamically stable. Use antibacterial soap. • Sequential Compression Devices on while in bed Diet/Nutrition • Advance diet as tolerated. • Diet: low cholesterol, low fat, carbohydrate controlled, no added salt

			Patient Care • Encourage cough and deep breathing • Sternal and leg incisions: clean daily with saline to remove dried secretions; apply 4x4 gauze dressing loosely to areas with continued drainage; change when wet • Chest Tube: Change dressings daily for excessive drainage until all tubes are discontinued. Place sterile 4x4 gauze over wound and tape in place • Pacer wire insertion sites: Cover each set of wires with transparent dressing; change PRN only • Blake drains: Change site dressings daily and PRN. Label drains from right to left and number consecutively with permanent marker • Remove ACE wraps/coban on lower extremity on POD #2 and apply knee high TED hose. Keep on bilateral legs during day and off at night • Discontinue IJ Sheath on POD #3 • Temporary Pacemaker settings (for HR<60/min): Mode: WI; Output: 10mA, Sensitivity: 1 MV • Foley urinary catheter to gravity. Indication: Peri Op Management (less than 48 hours post op) • Once Foley catheter removed: If patient unable to void or complains of bladder discomfort obtain bladder scan. Straight catheterize every 8 hours PRN if unable to void. Replace indwelling catheter if greater than 300 ml residual or second straight cath • Incentive Spirometry every 1 hour while awake • Oxygen therapy PRN, if SaO2<90% start oxygen via nasal cannula at 2L/min. Titrate to maintain SaO2 >89% • Saline lock IV when tolerating intake without nausea and vomiting. Maintain at least one site. Medications • Discontinue Heparin IV • Discontinue Morphine PCA pump • Aspirin 81 mg PO daily. First dose today. • Clopidogrel 75 mg PO daily. First dose today.	

NURSING | LEVEL: 4

		• Metoprolol 25 mg PO two times daily. First dose today. Hold if SBP<90 or HR < 60 off pacer • Atorvastatin 40 mg daily at bedtime • Docusate 100 mg PO three times daily. First dose today. Hold if loose stools • Polyethylene glycol 3350 1 packet PO PRN constipation • Fleet Enema 1 enema PR once daily PRN for constipation • Hydrocodone/acteminophen 5/325 2 tablets PO every 4 hours PRN for pain. No more than 4,000 mg Acetaminophen per 24 hours • Acetaminophen 650 mg PO every 4 hours PRN for pain rated 1-6 or temp 38.5 C or higher. No more than 4,000 mg Acetaminophen per 24 hours • Ondansetron 4 mg IVP every 6 hours PRN for nausea • Heparin 5000 units subcutaneous every 8 hours. Start POD#2. • Maintain CV Surg Insulin Infusion order through POD #3 am. Laboratory • Chem 7 daily times 2 days • CBC daily times 2 days
		----------Dr. Forssmann, M.D.
Today	Now	Diltiazem loading dose: Diltiazem 0.25mg/kg IV push over 2 minutes. Maximum does 20 mg.
		IV Diltiazem infusion 5-15 mg/hour. Start at 5 mg/hour immediately after Diltiazem bolus and titrate to maintain heart rate less than 100 beats/minute and systolic BP greater than 90 mm Hg. Maximum rate 15 mg/hour.
		Prepare for synchronized cardioversion
		IV Heparin infusion 12 U/kg/hr (max 1000 units /hour) ----------
		----------Dr. Forssmann, M.D.

Continue >

NURSING | LEVEL: 4

MAR

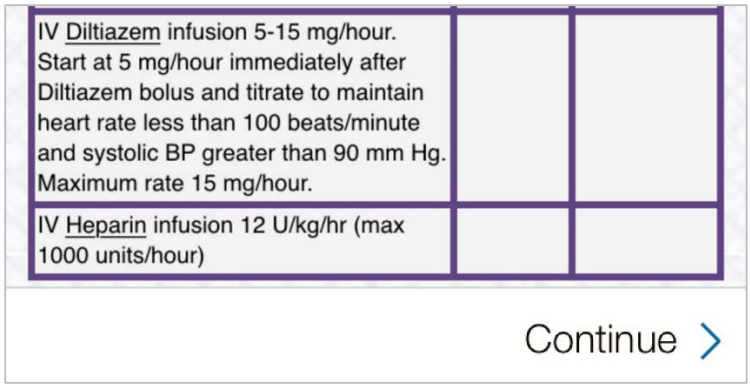
Facilitator Note: Students may click on each underlined medication for a hyperlink with medication information provided by National Library of Medicine.

MAR

Patient Name: Michael I. Milbourn
DOB:09/18/19XX Weight(kg):115
MR#: 1720
Provider: Dr. Bernard
Allergies: NKDA

Order	Sch. Time	Dose
Chewable non-enteric coated aspirin 81 mg four tabs PO STAT	Given yesterday 0900	
Nitroglycerin 0.4mg sublingually q5 minutes for 3 doses prn for chest pain	Given yesterday 0900, 0905, 0910	
0.9% NS at TKO rate		
Nitroglycerin IV infusion. Start at 5 mcg/min. Increase by 5 mcg every 5 minutes, up to 20 mcg/min, until response noted while maintaining SBP > 100	Given yesterday, 0915 5 mcg, 0920 10 mcg, 0925 15 mcg, 0930 20 mcg, 0930 15 mcg, Infusion ended 1100	
Morphine 2 mg IV every 5 minutes prn	Given yesterday 0930	
Mupirocin topical (Bactroban 2% nasal ointment), one-half tube, both nostrils	Given yesterday 1000	

Cefazolin (Ancef): give within 60 minutes or less prior to incision 1 gram for patients weighing 60 kg or less 2 grams for patients weighing 60.1 - 119.9 kg 3 grams for patients weighing 120 kg or greater	Given yesterday 1030	
Regular Insulin Infusion 100 units in 100 ml NS prn for pre-op blood sugar > 140 **Glucose level** / **Insulin drip rate units/hr** 140-199 / 1 200-299 / 2 300-399 / 3 400-499 / 4 >500 / 5 and call provider	2 units/hr drip, started 1030 yesterday	
Aspirin 81 mg PO daily		
Clopidogrel 75 mg PO daily		
Metoprolol PO 25 mg twice daily. Hold if SBP < 90 or HR < 60 off pacer		
Atorvastatin 40 mg PO daily at bedtime		
Docusate 100 mg PO three times daily. Hold if loose stools.		
Heparin 5000 units subcutaneously every 8 hours starting POD #2		
PRN Medications		
Polyethylene glycol 3350 1 packet PO PRN daily for constipation		
Fleet Enema 1 enema PR daily PRN for constipation		
Hydrocodone/acteminophen 5/325 2 tablets PO every 4 hours PRN for pain. No more than 4,000 mg Acetaminophen per 24 hours		
Acetaminophen 650 mg PO every 4 hours PRN for pain rated 1-6 or temp 38.5 C or higher. No more than 4,000 mg Acetaminophen per 24 hours		
Ondansetron 4 mg IVP every 6 hours PRN for nausea		
Diltiazem loading dose: Diltiazem 0.25mg/kg IV push over 2 minutes. Maximum dose 20 mg		



EXIT

- When the Exit tab is tapped, the iPad reads, ""Are you sure you have completed the simulation? When you exit, all iPad progress is lost."
    - If "No" is selected, the iPad automatically returns to the tabbed content area.
    - If "Yes" is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

DEBRIEF

Nothing needed from the iPad.

QUESTIONS

1. How did you feel this scenario went?
2. Review understanding of learning objectives: Administer cardiovascular system drugs safely
    a. Explain the rationale for each of the post-op medications ordered for Mr. Milbourn.
    b. Explain the rationale for the IV Diltiazem and IV Heparin.
3. Review understanding of learning objectives: Interpret a basic ECG pattern
    a. What heart rhythm did Mr. Milbourn develop?
    b. Why is this a common rhythm post-CABG?
4. Review understanding of learning objectives: Incorporate evidence-based practice and prioritize interventions while caring for a patient post-CABG surgery
    a. Explain the rationale for each of the post-op orders.
    b. Do you have any questions remaining about the post-op orders?
    c. How did you prioritize the orders?
    d. Explain the rationale for the new orders received when worsening afib occurred.
    e. What is synchronized cardioversion? Is the patient sedated for this procedure?
    f. What are the potential complications for someone experiencing worsening afib?
    g. If you could "do over," is there anything you would change about how your team prioritized and/or implemented the orders?
5. Review understanding of learning objectives: Communicate therapeutically with a patient experiencing an acute health care crisis
    a. How did you respond therapeutically to Mr. Milbourn's concerns? Was it effective?
    b. If you could "do over," is there anything you would change about your interaction with Mr. Milbourn?

6. Review understanding of learning objectives: Report complete, accurate, and pertinent information to the health care team
    a. What did you report to the provider during this scenario? How did it go? Is there anything you would change if you could "do over?"
    b. As a large group activity, create a "best response SBAR report" when notifying the provider of the patient's change in condition.
7. Tie the scenario back to the nursing process in a large group discussion. Concept mapping can be used to facilitate discussion.
    a. Identify priority post- op nursing problems you identified for Mr. Milbourn.
    b. Create a patient centered goal for each nursing problem you identified.
    c. Discuss potential focused assessments for each nursing problem.
    d. Discuss priority nursing interventions for each nursing diagnosis.
    e. Re-evaluate the simulation in terms of the nursing process; what was actually accomplished? What could be improved in the future?
8. Summary/Take Away Points
    a. "Today you provided post-op care for a male patient who had undergone a CABG. What is one thing you learned from participating in this scenario that you will take with you into your nursing practice?" (Each student must share something different from what the others' share.)

NOTE: Debriefing technique is based on INASCL Standards for Debriefing and NLN Theory-Based Debriefing by Dreifuerst.

SURVEY

Print this page and provide to students.

Students, please complete a brief (2-3 minute) survey regarding your experience with this ARISE simulation. There are two options:

1. Use QR Code: Survey
    a. Note: You will need to download a QR Code reader/scanner onto your own device (smartphone or tablet). There are multiple free scanner apps available for both Android and Apple devices from the app store.
    b. This QR Code will not work in the ARIS app.

SURVEY

2. Copy and paste the following survey link into your browser.
    a. https://ircvtc.co1.qualtrics.com/SE/?SID=SV_6Mwfv98ShBfRnBX

CREDITS

CXR from http://radiopaedia.org/

ECG used from Life in the Fast Lane at www.lifeinthefastlane.com

ECG with afib from http://nl.ecgpedia.org/images/6/64/Afib_ecg.jpg

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