

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 who just arrived in the ED via ambulance after walking into an urgent care clinic with worsening chest pain. Students will implement the ED protocol for chest pain, which includes obtaining a stat 12 lead ECG and starting two IVs. Then, they will implement orders for both non-STEMI chest pain and pre-op Coronary Artery Bypass Grafting (CABG) surgery. Other student responsibilities associated with medication administration include: titrating IV Heparin, recognizing when the patient becomes hypotensive, and managing the patient safely.

LEARNING OBJECTIVES

1. Administer cardiac related medications safely
2. Interpret a basic ECG pattern and cardiac-related lab results
3. Prioritize nursing care for a male patient with new onset chest pain
4. Incorporate evidence-based practice while caring for a patient requiring coronary artery bypass grafting (CABG) surgery
5. Communicate therapeutically with a patient experiencing an acute health care crisis
6. 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

BASIC SKILLS

- Perform mathematical calculations related to clinical practice

- Manage oxygen therapy
- Manage intravenous therapy

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 (peri-operative)

COMPLEX HEALTH ALTERATIONS 1

- Evaluate nursing care for patients with coronary artery disease

ADVANCED SKILLS

- Initiate IV therapy via peripheral access
- Administer IV push medications
- Interpret basic electrocardiogram patterns

SIMULATION LEARNING ENVIRONMENT & SET-UP

ENVIRONMENT

Inside room: Patient on bed, emergency room setting

Inside or outside room: Hand sanitizer or sink

Outside room: Computer or form(s) for documentation, Medications with QR labels

PATIENT PROFILE

Name: Michael I. Milbourn

Spiritual Practice: Christian, Protestant

DOB: 09/18/19XX

Ethnicity: African American

Age: 69

Primary Language spoken: English

MR#: 1720

Allergies: NKDA

Gender: Male

Admitting Diagnosis: Angina (I20.1)

Height: 185 cm (73 inches)

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

Weight: 115 kg (253 lbs)

Code Status: Full code

EQUIPMENT/SUPPLIES/SETTINGS

Patient

- Hospital gown with nasal cannula at 2 lpm
- Moulage to appear slightly gray and diaphoretic
- ID band with QR code
- One IV present from EMS
- Jewelry present

Monitor Settings

- On cardiac monitor with pulse oximetry
- Vitals: BP 170/96, P 120, RR 24, O2 93%, T 37.5C (99.5F), Pain: 8/10

Supplies

- **General**
 - **Equipment to obtain vitals including oxygen saturation**
 - **Equipment to obtain ECG**
 - **IV start supplies**
 - **Incentive spirometer**
 - **Phone**
 - **Heart pillow to splint incision after surgery**
- **Medications (realistic IV labels are available by scanning the QR code)**
 - **Nitroglycerin 0.4 mg sublingual – patient supply in small brown glass bottle**
 - **Aspirin chewable tablets 81 mg – 4 tabs**
 - **Nitroglycerin IV in a clear glass bottle**
 - **Morphine IV**
 - **Mupirocin ointment**
 - **Cefazolin IV**
 - **Regular Insulin 100 units in 100 ml 0.9% NS**

QR CODES

START 	PATIENT 	REPORT 	PATIENT ID 
ASPIRIN 	NITRO PO 	NITRO IV 	MUPIROCIN 
CEFAZOLIN IV 	REGULAR INSULIN IV 	INCENTIVE SPIROMETER 	MORPHINE IV 

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
 - When you hear that someone is having chest pain, what are your immediate concerns?
- Play the “Patient” video (on iPad)
 - Possible Facilitator Question
 - Based the patient’s subjective complaint, what are your priority interventions?

- 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

No reports available.

ORDERS

		Orders
Patient Name: Michael I. Milbourn DOB:09/18/19XX Weight(kg):115 MR#: 1720 Provider: Dr. Bernard Allergies: NKDA		
Date	Time	Order
Today	PRN	<p>Note: The purpose of these Emergency Department Dependent Protocol orders is to initiate and expedite appropriate patient care. Providers are to be notified as soon as possible depending on triage category, and consulted whenever there is a question regarding the appropriateness of initiating these orders</p>
		<p><u>Supplemental Oxygen Therapy</u></p> <ol style="list-style-type: none"> 1. Administer supplemental oxygen to the following patient populations: <ol style="list-style-type: none"> a. Patients complaining of chest pain of possible cardiac origin b. Patients who present with cyanosis or obvious dyspnea c. Patients who present with symptoms of chronic obstructive diseases including wheezing, shortness of breath and dyspnea 2. When administering supplemental oxygen, begin with nasal cannula and advance to non-rebreather mask to keep oxygen saturation > 95%. <p><u>Initiation of IV access</u></p> <ol style="list-style-type: none"> 1. Initiate IV access with saline lock or NS 0.9% at TKO rate for the following patients: <ol style="list-style-type: none"> a. Significant decrease in level of consciousness b. Significant blood loss, hypotension or shock like state

		<ul style="list-style-type: none"> c. Pain of possible cardiac origin d. Suspected overdose e. Respiratory decompensation <ul style="list-style-type: none"> 2. Patients who require volume resuscitation or blood replacement require 2 large bore IVs – 18 ga or greater <p><u>Life-threatening Conditions</u></p> <ul style="list-style-type: none"> 1. Notify the provider of any life threatening condition 2. Cardiopulmonary Arrest: Initiate BLS, ACLS and TNCC measures. Place patient on monitor/defibrillator/pacer and defibrillate ventricular fibrillation and pulseless ventricular tachycardia <p><u>Management of patients with Suspected Acute Coronary Syndrome (cardiac-related chest pain):</u></p> <ul style="list-style-type: none"> 1. Obtain an ECG STAT within 5 minutes of arrival 2. Notify the provider of ECG results within 10 minutes of patient arrival <p><u>Antipyretics</u></p> <ul style="list-style-type: none"> 1. For adult patients with temperature >38.3 C, administer Acetaminophen 1000mg PO/PR if more than 4 hours since last dose
Continue >		

MAR

No reports available.

VITALS

The iPad reads, “No reports available. You must verify the patient before vitals can be taken.”

PROGRESS NOTES

No reports available.

LABS-DIAGNOSTICS

No reports available.

IMAGING

No reports available.

ECG

The iPad reads, "No reports available. You must verify the patient first."

SCANNER

STATE 1

ASSESS CHIEF COMPLAINT & STAT ECG

- Patient Overview
 - Patient is in pain 9/10, slightly short of breath, slightly sweaty and slightly anxious. He is complaining of “heart burn” and “gas” that started about this morning that has now become “chest pain” like a “truck sitting on his chest.” He is asking, “Do you think it’s a heart attack?”
- Expected Student Behaviors
 - Introduce themselves
 - Verify the patient (Scan **QR Code: Patient ID**)
 - Perform a rapid focused assessment of the chief complaint of chest pain
 - Obtain a stat ECG according to the ED Dependent Protocol. (See ECG instructions under ECG tab below).
 - Students should recognize the rhythm as a “T wave inversion” or “non-STEMI” and immediately notify the provider.
 - Determine if any meds should be administered
 - Students should realize that paramedics already administered aspirin and the patient already took three Nitroglycerin sublingual before coming to ED, so they have to await new orders.
 - Assess oxygen status and titrate oxygen to achieve 94% according to orders
- Technician Prompts
 - Patient is concerned and moderately anxious. He is unsure whether to take his Nitro.
 - Patient responses can include:
 - “It feels like a truck is sitting on my chest.”
 - “I feel sweaty and a little winded... can’t catch my breath.”
 - “This pain in my chest is 8/10.”
 - “I’ve had chest pain before but it usually goes away after I sit and rest.”

- “I have never taken Nitro before. I took three doses in the clinic and now I have a horrible headache.”
- Possible Facilitator Questions
 - What are your concerns based on your assessment findings?
 - What does the ECG indicate?
 - Why is oxygen required even if he is at 93%?
 - What are the therapeutic effects of aspirin and Nitroglycerin in this situation?
 - Compare stable angina to unstable angina: what are the characteristics?
- Tabbed iPad Prompts & Content Changes
 - Vitals
 - When the Vitals tab is tapped, the iPad reads, “No reports available. You must verify the patient before vitals can be taken.”
 - After students scan the **QR Code: Patient ID**, the iPad will allow students to enter vitals on the “enterable” vitals screen.
 - This is optional as they are not tied to any iPad programming.
 - ECG/ECG Results
 - Before the **QR Code: Patient ID** is scanned:
 - When the “ECG” tab is tapped, the iPad reads, “No reports available. You must verify the patient first.”
 - After the **QR Code: Patient ID** is scanned:
 - When the “ECG” tab is tapped, the iPad shows an image of proper ECG lead placement.
 - Then, the “ECG” tab automatically changes to an “ECG Results” tab.
 - When the ECG Results tab is tapped:
 - The iPad shows an image and ECG with “T wave inversion” or “non-STEMI.”
 - The image of this ECG is zoomable.

- When students leave the ECG results tab by going back to the Patient Profile screen, the iPad automatically reads, “New Orders Received.”

VITALS

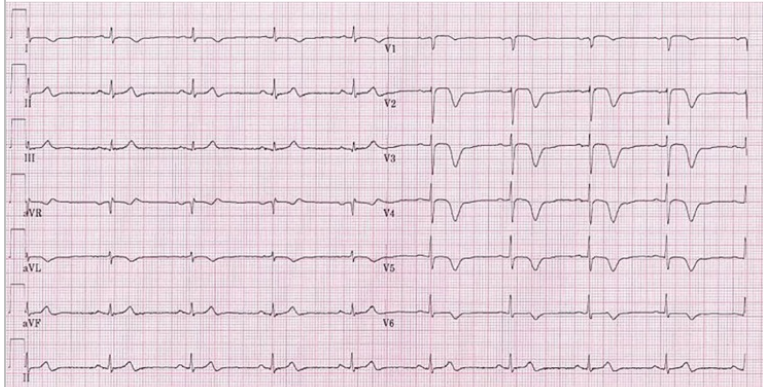
The iPad reads, “No reports available. You must verify the patient before vitals can be taken.”

- Facilitator Note: Students can enter vitals here (They are not tied to any iPad programming.). Must scan **QR Code: Patient ID** first.

ECG/ECG RESULTS

- Before the **QR Code: Patient ID** is scanned:
 - When the “ECG” tab is tapped, the iPad reads, “No reports available. You must verify the patient first.”
- After the **QR Code: Patient ID** is scanned:
 - When the “ECG” tab is tapped, the iPad shows an image of proper ECG lead placement.
 - Then, the “ECG” tab automatically changes to an “ECG Results” tab.
- When the ECG Results tab is tapped, the following results display:

☰ ECG Result



...

Patient Name: Michael I. Milbourn
DOB: 09/18/19xx MR#:1720
Results: Awaiting MD interpretation

STATE 2

IMPLEMENT NEW ORDERS

- Patient Overview
 - Patient is anxious and in denial.
 - ECG results indicate a non-STEMI is occurring. Students implement new non-STEMI orders while awaiting orders from the cardiologist. The patient continues to have chest pain, so Nitroglycerin IV should be titrated according to response. Students must appropriately manage the patient as he becomes hypotensive.
- Expected Student Behaviors
 - Prioritize and organize new orders according to patient condition
 - Administer Nitroglycerin IV (Scan **QR Code: Nitro IV** for medication label and to verify administration of medication.) Titrate medication as ordered for chest pain while monitoring vitals and maintaining SBP > 100.
 - Students should recognize patient already had 3 Nitroglycerin sublingual doses before arrival
 - Students should calculate initial dosage of 1.5 ml/hour
 - When **QR code: Nitro IV** is scanned, the iPad automatically advances to State 3 and students see a new message that reads, “New Orders Received.”
 - Students may optionally administer Morphine IV if patient continues to experience chest pain (Scan **QR Code: Morphine IV** for medication label and to verify administration of medication)
 - Call for “lab” for new lab work and “radiology” for CXR
- Technician Prompts
 - Patient is still in denial that this is happening, “I can’t believe I’m having a heart attack.”
 - As student is administering medications, patient responses can include:
 - Ask questions related to what the medications are for and demonstrate some anxiety about all the IVs

- Patient continues to complain of chest pain so that students should continue to titrate Nitroglycerin IV upwards.
- At the direction of the facilitator, start to complain of “lightheadedness” as you gradually drop the systolic BP below 100 on the simulator.
 - **Technician/Facilitator Note:** The gradual hypotension will continue into State 3 as students are implementing new orders
- Possible Facilitator Questions
 - How will you prioritize the orders? Which orders should be done first? Why? (Then guide them to correct prioritization according to his condition.)
 - Discuss side effects of Nitroglycerin IV and how to titrate it appropriately.
- Tabbed iPad Prompts & Content Changes
 - After **QR Code: Nitro IV** is scanned, the iPad automatically advances to State 3 and the iPad displays, “New Orders Received.”

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/HOSPITALIZATIONS 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
Today	Now	CK-MB, Troponin, CBC, Electrolytes, BUN, Creatinine, Glucose, Magnesium, INR, PTT STAT
		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
		IV with 0.9%NS at TKO rate
		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.

[Continue >](#)

MAR

Facilitator note: Students may click on the underlined medication to hyperlink to medication information provided by the 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 <u>aspirin</u> 81 mg four tabs PO STAT		
<u>Nitroglycerin</u> 0.4mg sublingually q5 minutes for 3 doses prn for chest pain		
0.9% NS at TKO rate		
<u>Nitroglycerin</u> 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		
<u>Morphine</u> 2 mg IV every 5 minutes prn		

[Continue >](#)

LABS-DIAGNOSTICS



Labs-Diagnostics

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

Chem 7* and Magnesium				
Date Time	Today now		Units	Reference Range
*Glucose	210		mg/dL	Fasting 70-105
*BUN	28		mg/dL	10-25
*Creatinine	1.8		mg/dL	F: 0.4-1.4/M: 0.5-1.5
*Sodium	144		mEq/L	135-145
*Potassium	3.6		mEq/L	3.5-5.3
*Chloride	98		mEq/L	98-108
*Calcium	8.6		mg/dL	8.5-10.5
Magnesium	1.8		mEq/L	1.5-2.4

CBC with Differential				
Date Time	Today Now		Units	Reference Range
WBC	8.0		x10 ³ /uL	4.5-11
RBC	5.1		x10 ⁶ /uL	F: 4.2-5.4/M: 4.6-6.2
HgB	15.1		g/dL	F:13.0-15.0/M:14.0-17.0
HCT	45.3		%	F: 38-47/M: 42-52
MCV	85.3		fL	80-90
MCH	27.8		pg	27-32
MCHC	33.6		g/dL	32-36
RDW	13.2		%	11.5-14.5
Platelet	224		x10 ⁹ /uL	150-450
MPV	7.8		fL	6.0-12.0
Neutro	60		%	40-70
Lymph	24		%	22-40
Mono	2.3		%	1-10
Eos	1.4		%	1-7
Baso	0.8		%	0-2

Cardiac Enzymes				
Date Time	Today Now		Units	Reference Range
CK-MB	10.0		Ng/ml	0.0-5.0
Troponin	5.1		ug/L	0.0-0.1

Coagulation				
Date Time	Today Now		Units	Reference Range
PT	11.2		seconds	11-12.5
INR	1.0			1.0
aPTT	27			Less than 35

Continue >

STATE 3

IMPLEMENT PRE-OP CABG ORDERS

- Patient Overview
 - Cardiology consult is complete. The cardiologist indicates that patient had a previous cardiac catheterization last week. It was recommended that he have a CABG at that time, but he elected to postpone the surgery due to family commitments. New pre-op orders are received from the cardiologist for a STAT CABG. Along with the new pre-op CABG orders, students should initiate IV Regular Insulin and IV Cefazolin while communicating therapeutically and addressing Michael's concerns.
 - Michael is anxious and has a lot of questions about the surgery.
- Expected Student Behaviors
 - Prioritize and organize orders according to patient condition
 - Obtain informed consent (within RN Scope of Practice)
 - Students can access this form under the “Informed Consent” tab.
 - Facilitator Note: this form can be printed from this documentation for use during the scenario.
 - Continue to titrate Nitroglycerin IV as ordered for chest pain while monitoring and maintaining SBP > 100
 - May optionally administer Morphine IV if patient continues to experience chest pain (Scan **QR Code: Morphine IV** for medication label)
 - Obtain vitals every 15 minutes
 - Initiate NPO status
 - Notify anesthesia of blood glucose > 180
 - Provide pre-op patient education including: how to use the heart pillow and the incentive spirometer (Scan **QR Code: Incentive Spirometer** if an actual incentive spirometer is not available. This shows an image of an incentive spirometer.)
 - Apply surgical wash to groin and surgical sites
 - Remove jewelry
 - Insert Foley catheter

- Recognize pre-op blood sugar is >140 and administer Insulin drip (Scan **QR Code: Regular Insulin IV** for medication label) and once on insulin drip:
 - Obtain finger stick glucose and urine output hourly
 - Check electrolytes every 2 hours
 - Administer Regular Insulin IV according to sliding scale
- Page chaplain to notify of surgery and to speak to patient and wife
- Confirm patient took AM beta blocker if not contact the surgeon
- Call for additional pre-op labs and diagnostics: Hemoglobin A1C, Type and Screen, CXR
- Administer Mupirocin in nostrils (Scan **QR Code: Mupirocin** for medication label)
- Administer Cefazolin IV according to weight (Scan **QR Code: Cefazolin IV** for medication label)
 - Students should calculate 2 grams.
- Technician Prompts
 - Patient is still in denial that this is happening, “I can’t believe I’m having a heart attack.”
 - Patient should lament that he waited to have the CABG surgery, but create a story about a family obligation like a daughter’s graduation, wedding, etc... that he wanted to attend and didn’t want to “pull people away” from the event to focus on him.
 - As student is administering medications, patient responses can include:
 - Ask questions related to what the medications are for and demonstrate some anxiety about all the IVs
 - As the student is performing pre-op teaching, patient responses can include:
 - Act distracted.
 - Ask questions about surgery and demonstrate non-interest in the heart pillow or incentive spirometer at this time.
 - Ask for the chaplain and his wife (if people available to role play the parts).

- Possible Facilitator Questions
 - How should the orders be prioritized? Which orders should be implemented first? Why? (Then guide them to correct prioritization according to his condition.)
 - Discuss possible causes of the elevated pre-op glucose and how it should be managed with the insulin infusion.
- Tabbed iPad Prompts & Content Changes

ORDERS

		Orders
Patient Name: Michael I. Milbourn DOB:09/18/19XX Weight(kg):115 MR#: 1720 Provider: Dr. Bernard Allergies: NKDA		
Date	Time	Order
Today	15 Minutes ago	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.
Today	Now	Prepare for Multivessel Coronary Artery Bypass Grafting
		Surgical Pre-Operative Order Set: Adult Cardiac Surgery <ul style="list-style-type: none"> • Informed consent • Resuscitation Status: Full resuscitation • Vital signs q 15 minutes

		<ul style="list-style-type: none"> ● 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: <ul style="list-style-type: none"> ○ Mupirocin topical (Bactroban 2% nasal ointment), one-half tube, both nostrils ○ Cefazolin (Ancef): give within 60 minutes or less prior to incision <ul style="list-style-type: none"> ▪ 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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		<p>CV Surg Insulin Infusion order</p> <p>Regular Insulin Infusion 100 units in 100 ml NS prn for pre-op blood sugar > 140</p> <table border="1"> <thead> <tr> <th>Glucose Level</th> <th>Insulin drip rate units/hr</th> </tr> </thead> <tbody> <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> </tbody> </table>	Glucose Level	Insulin drip rate units/hr	140-199	1	200-299	2	300-399	3	400-499	4	>500	5 and call provider
Glucose Level	Insulin drip rate units/hr													
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400-499	4													
>500	5 and call provider													
		----- Dr. Forssmann, M.D.												
Continue >														

MAR

Facilitator note: Students may click on the underlined medication to hyperlink to medication information provided by the 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 <u>aspirin</u> 81 mg four tabs PO STAT		
<u>Nitroglycerin</u> 0.4mg sublingually q5 minutes for 3 doses prn for chest pain		
0.9% NS at TKO rate		
<u>Nitroglycerin</u> 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		
<u>Morphine</u> 2 mg IV every 5 minutes prn		
<u>Mupirocin</u> topical (Bactroban 2% nasal ointment), one-half tube, both nostrils		
<u>Cefazolin</u> (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		

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

Continue >

PROGRESS NOTES



Progress Notes


Patient Name: Michael I. Milbourn
DOB:09/18/19XX MR#: 1720

Progress Notes

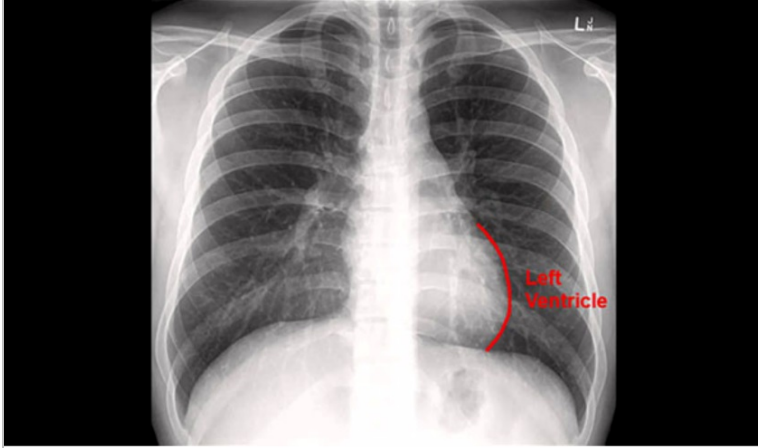
Date & Time	Note
Today - Now Cardiologist Consult	Patient presented to ER via ambulance complaining of chest pain after having already taken Nitroglycerin sublingual x 3. STAT ECG demonstrates T wave inversion. This patient is well known to me. A coronary angiogram was completed last week which demonstrated multiple blockages in LAD and RAD and a CABG was recommended. Michael had previously elected to schedule the surgery for next week due to family commitments. Plan: Prepare patient for multivessel coronary artery bypass STAT. Medically manage chest pain with IV Nitroglycerin titrated to condition and IV Morphine prn until surgery. ----- -----Dr. Forssmann, MD.

Continue >

IMAGING



Imaging



Patient Name: Michael I. Milbourn
DOB: 09/18/19xx MR#:1720
Results: Awaiting MD interpretation

Continue >

INFORMED CONSENT



Informed consent form



Consent Form

AUGMENTED REALITY INTEGRATED SIMULATION EDUCATION

1. I consent to, authorize and direct Dr. Forsmann (my physician) and his/her chosen associates or assistants to perform the following procedures(s) on me Multivessel Coronary Artery Bypass Surgery and to do such other procedures as are in their professional judgment, necessary and desirable, including but not limited to procedures involving pathology, radiology and anesthesia. I understand that it is or may be foreseeable that during the course of the surgical or other procedure, unanticipated conditions may be revealed that require an extension of the original procedure and therefore, I consent to and authorize my physician and his/her associates to remedy conditions that are not known at the time the procedure is commenced, but are necessary in his/her professional judgment to remedy.
2. The procedure discussed above, and its risks and benefits have been fully explained to me and I understand its nature and consequences. I understand the risk of complications, including failure, and that serious injury or even death may result from both known and unknown causes during the procedure(s). My physician has explained to me and discussed available alternate viable modes of treatment, their benefits and risks, and possible effectiveness. No guarantee or assurance has been given to me by anyone as to the results that may be obtained, but the likely result of no treatment have been explained to me.
3. I consent to, authorize and request the administration of such anesthetic or anesthesia that is deemed suitable by my physician/surgeon/anesthesiologists, for the procedure(s) described above.
4. My physician has discussed with me the likelihood of needing a blood transfusion during the surgical procedure and post-procedural period. *If the likelihood is present that I will need blood, please continue. If it is unlikely I will need blood, go to #8.* My physician has explained to me the risks and benefits of receiving blood, and the viable medical alternatives and their risks and benefits. Blood components have been tested by a variety of methods for the presence of infectious agents. However, a risk of disease transmission through blood and blood product transfusion still exists. Potential infectious diseases transmitted through transfusion of blood and blood products are, but are not limited to, hepatitis, an inflammatory infection of the liver, and HIV, the virus that causes AIDS.
5. If the likelihood is present that I may require a blood transfusion, I indicate my wishes regarding a blood transfusion by marking Yes or No below:
 - i. Yes, I consent to receive blood products.
 - ii. I have arranged for an autologous transfusion
 - iii. I have arranged for an autologous transfusion, but consent to receive nonautologous blood products if necessary
6. I have had sufficient opportunity to discuss my condition and treatment with my physician, and his/her associates, and all of my questions have been answered to my satisfaction. I believe I have adequate information on which to base an informed consent to the procedure(s).

Signature of patient or authorized person

Relationship

Witness

Date/Time

Continue >

EXIT

- An “Exit” tab automatically appears after **QR Code: Cefazolin IV**, **QR Code: Regular Insulin IV**, and **QR Code: Mupirocin** are scanned.
- 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 how you titrated Nitroglycerin IV for Mr. Milbourn. What did you monitor? If you could “do over,” if there anything you would change?
 - b. Did you administer Morphine IV to Mr. Milbourn? Why or why not?
3. Review understanding of learning objectives: Interpret a basic ECG pattern and cardiac-related lab results
 - a. What cardiac labs indicated that Mr. Milbourn was having an MI?
 - b. What did the ECG indicate?
 - c. What is the difference between a STEMI and a non-STEMI? How does this difference impact your nursing care?
4. Review understanding of learning objectives: Prioritize nursing care for a male patient with new onset chest pain and a non-STEMI on ECG results and Incorporate evidence-based practice while caring for a patient with emergent coronary artery disease requiring coronary artery bypass surgery.
 - a. Your initial orders included: oxygen, aspirin, Nitroglycerin, lab work and an ECG. Why does the ECG receive top priority?
 - b. Several pre-op orders were received by the cardiologist (if possible, display a copy of the orders.) How did you prioritize these orders? If you could “do over,” is there anything you would have done differently?
 - c. Can you delegate any of these orders?
 - d. What other resources could you call for assistance in an emergent situation?
 - e. What are some reasons for Mr. Milbourn’s blood sugar being elevated?
 - f. How did you manage his insulin drip?
 - g. Review IV compatibilities: which medications could be administered using the same IV line?

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.



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

CREDITS

Chest Xray downloaded from <http://radiopaedia.org/>

ECG downloaded from: <http://en.ecgpedia.org/wiki/File:DVA1995.jpg>

Medication information from DailyMed, U.S. Library of Medicine. Downloaded from <https://dailymed.nlm.nih.gov/dailymed/index.cfm>

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