# ATYPICAL CHEST PAIN FEMALE

Estimated Time: 60 minutes • Debriefing Time: 60 minutes

Scan to Begin

Patient Name: Maria I. Franco

## SCENARIO OVERVIEW

Maria I. Franco is a 47-year-old female who presents to the emergency department with "heartburn" and "indigestion" that the student(s) should recognize as atypical chest pain. The student(s) should immediately obtain a STAT ECG per ED protocol and interpret ST-elevation from the ECG results. A STEMI protocol is initiated, including starting 2 IVs and administering several IV medications which require math calculations. Once the student(s) administers the medications as ordered on the STEMI protocol, a cardiology consult is received and the student(s) will administer pre-op orders for an emergent cardiac catheterization/PCI.

# LEARNING OBJECTIVES

1. Administer cardiac system related medications safely
2. Interpret a basic ECG pattern and cardiac-related lab results
3. Prioritize nursing care for a female patient with new onset chest pain
4. Incorporate evidence-based practice while caring for a patient with emergent coronary artery disease requiring cardiac catheterization
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

## 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
- Provide nursing care for patients with alterations in oxygenation

## 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, ECG machine/cart

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

## PATIENT PROFILE

Name:  Maria I. Franco

DOB: 07/16/19XX

Age: 47

MR#: 1316

Gender: Female

Height: 157 cm (62 inches)

Weight: 72 kg (160 lbs)

Code Status: Full code

Primary Language spoken: English

Current Medications: None

Allergies: Shellfish

Admitting Diagnosis: Heartburn (R12), Chest Pain (R07.89)

Medical History: Diabetes Mellitus (E11.9), HTN (I10), Hyperlipidemia (E78.5), Smoker, nicotine addiction (F17.210)

## EQUIPMENT/SUPPLIES/SETTINGS

**Patient**

- Hospital gown without oxygen on
- Moulage to appear slightly gray and diaphoretic
- ID band with QR code

**Monitor Settings**

- On cardiac monitor with pulse oximetry
- Vitals: BP 145/95, P 115, RR 25, O2 93%, T 37.5C (99.5F), Pain: 9/10

**Supplies**

- General
    - Equipment to obtain vitals including oxygen saturation

  - Nasal cannula
  - Phone
  - IV Start kit x 2
  - Materials to obtain ECG
  - NS IV flushes
  - Informed consent form (may print copy displayed under State 3)
  - Simulated hair clippers for pre-op orders
- Medications (realistic labels are available by scanning the QR code)
  - Aspirin chewable tablets 81 mg – 4 tabs
  - Nitroglycerin 0.4 mg sublingual – 3 tabs
  - Heparin IV bag (12,500 units in 250 ml)
  - Nitroglycerin 50 mg in 0.9% NS 250ml glass bottle
  - 0.9% NS 1000 ml bag
  - Famotidine 20 mg vial
  - Montelukast 10 mg tabs
  - Promethazine 12.5 mg (2 vials)

# QR CODES

| | | | |
|---|---|---|---|
| START | PATIENT | REPORT | PATIENT ID |
| CHEST | IV SITE #1 | IV SITE #2 | ASPIRIN PO |
| NITRO SUBL | NITRO IV | HEPARIN IV | FAMOTIDINE IV |
| MONTELUKAST PO | PROMETHAZINE IV | FACILITATOR | |

# 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.
    - Level Up tab – This tab "tells" the content in the iPad to change to what is needed for the next state of a simulation. It also helps student know where they are at in a scenario and it may give "clues" as to how to progress.
- Discuss the simulation "Learning Objective(s)" (on iPad) as well as any other Prebrief materials
- Get "Report" (on iPad)
    - Possible Facilitator Questions
        - What are your priority concerns based on the report you received?
- Play the "Patient" video (on iPad)
    - Possible Facilitator Questions

- What are your concerns when a female patient complains of epigastric "heartburn pain?
- What focused assessments will you perform?
- What priority interventions are required?

- 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.
    - For this scenario, students should review the Emergency Department Dependent Protocol and immediately enter the patient's room.

## HISTORY AND PHYSICAL

No reports available.

## VITALS

Students see the "enterable" vitals screen.

- Simulator vitals are set to: BP 145/95, P 115, RR 25, O2 sat 93%, T 37.5 C, Pain 9/10

# ORDERS- ED PROTOCOL

Emergency Department Depende…

**Patient Name: Maria I. Franco**
**DOB:07/16/19XX Weight(kg):72**
**MR#: 1316**
**Provider: Dr. Bernard**
**Allergies: Shellfish**

| Date | Time | Order |
|---|---|---|
| Today | PRN | 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 |
| | | Supplemental Oxygen Therapy<br>1. Administer supplemental oxygen to the following patient populations:<br>a. Patients complaining of chest pain of possible cardiac origin<br>b. Patients who present with cyanosis or obvious dyspnea<br>c. Patients who present with symptoms of chronic obstructive diseases including wheezing, shortness of breath and dyspnea<br>2. When administering supplemental oxygen, begin with nasal cannula and advance to non-rebreather mask to keep oxygen saturation > 95%. |

Initiation of IV access

1. Initiate IV access with saline lock or NS 0.9% at TKO rate for the following patients:
    a. Significant decrease in level of consciousness
    b. Significant blood loss, hypotension or shock like state
    c. Pain of possible cardiac origin
    d. Suspected overdose
    e. Respiratory decompensation
2. Patients who require volume resuscitation or blood replacement require 2 large bore IVs (18 ga or greater)

Life-threatening Conditions

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.

Management of patients with Suspected Acute Coronary Syndrome (cardiac-related chest pain):

1. Obtain an ECG STAT within 5 minutes of arrival
2. Notify the provider of ECG results within 10 minutes of patient arrival

Antipyretics

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.

## PROGRESS NOTES

No reports available.

## LABS-DIAGNOSTICS

No reports available.

## IMAGING

No reports available.

## ECG

The iPad reads, “Verify the patient before starting ECG.”

## LEVEL UP

The iPad reads, “Option not available yet. You must at least verify the patient first and execute ECG order.”

## SCANNER

STATE 1

# ASSESS CHIEF COMPLAINT & IMPLEMENT ED PROTOCOL

- Patient Overview
    - Patient is complaining of epigastric “heartburn” pain she rates as 9/10. She is diaphoretic, “wiped out,” and slightly short of breath.
- Expected Student Behaviors
    - Introduce themselves
    - Verify the patient (Scan **QR Code: Patient ID**)
    - Perform a rapid focused assessment of the chief complaint
    - Obtain vital signs (may enter Vitals on iPad – none are currently displayed). Current simulator vitals are: BP 145/95, HR 115, RR 25, O2 sat 93%, T 37.5C, Pain 9/10
    - May scan **QR Code: Chest** at any time during the scenario to listen to heart sounds (S4 present with picture of a blockage in the LAD).
    - Obtain a STAT ECG according to the ED Dependent Protocol. (See ECG instructions below.)
    - Recognize ST elevation on ECG and immediately notify the provider using SBAR format.
- Possible Facilitator Questions
    - What symptoms of atypical chest pain is Maria experiencing?
    - What timeframe is expected in this type of scenario? (Current standards of care are that a chest pain protocol is initiated and a STAT ECG performed and signed by the provider within 10 minutes of patient presentation.)
    - What does ST elevation signify? How does it impact our prioritization of care?
- Technician Prompts
    - Patient is concerned and anxious.
    - Initial patient responses can include:

        - "It hurts above my bellow button and between my shoulder blades"
        - "I feel a little winded... like I can't catch my breath."
        - "Why do I feel so wiped out with heartburn?"
        - "I'm so sweaty! It must be hot in here!"
        - Pain is 9/10
    - As students place ECG leads:
        - "What is that for?"
        - "Is that machine going to shock me like they do on TV?"
        - "Why do I need an ECG for heartburn? I thought it was just bad indigestion."
    - After ECG is reviewed on the iPad:
        - "What do those squiggly lines mean?"
        - "Is this serious?"
- Tabbed iPad Prompts & Content Changes
    - ECG Placement
        - When the ECG Placement tab is tapped (after students scan the **QR Code: Patient ID)**, 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 ST Elevation.
            - The iPad ECG results state, "Awaiting MD Interpretation"
            - 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 provider orders have been received."
    - Level Up

- When the Level Up tab is tapped, the iPad read, “Option not available yet. You must at least verify the patient first and execute ECG order.”
- After the ECG results are viewed, the iPad content automatically advances to level 2.

## VITALS

Facilitator Note: Students may optionally enter vitals here (There are not tied to any iPad programming).

## ECG/ ECG PLACEMENT/ ECG RESULTS

- Before the **QR Code: Patient ID** is scanned:
  - When the “ECG” tab is tapped, the iPad reads, “Verify the patient before starting ECG.”
- After the **QR Code: Patient ID** is scanned:
  - The “ECG” tab automatically changes to an “ECG Placement” tab.
  - When the “ECG Placement” tab is tapped, the iPad reads, “ECG lead placement” and shows an image of proper ECG placement.
  - Then, the “ECG Placement” tab automatically changes to an “ECG Results” tab.
- When the ECG Results tab is tapped:
  - 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 provider orders have been received.”

## LEVEL UP

- When the Level Up tab is tapped, the iPad read, “Option not available yet. You must at least verify the patient first and execute ECG order.”

- After the ECG results are viewed, the iPad content automatically advances to level 2.

STATE 2

# IMPLEMENTATION OF STEMI PROTOCOL

- Patient Overview
    - Patient is still in pain 9/10 and slightly short of breath. She is becoming moderately anxious. She is not yet aware of the results of her ECG.
- Expected Student Behaviors
    - Review new orders
    - Apply oxygen via nasal cannula to maintain O2 sat >94%
    - Administer 4 chewable aspirin (Scan **QR Code: Aspirin** for medication label)
    - Administer Nitroglycerin sublingually STAT q 5 minutes x 3 doses (Scan **QR Code: Nitro SubL** for medication label)
    - Start two 18 g IVs then administer 0.9% NS at TKO rate
    - Call "lab" for STAT lab work to be drawn
    - Call "radiology" for STAT CXR
    - Administer Heparin IV medication (Scan **QR Code: Heparin IV** for medication label)
        - Perform the following math calculation based on orders:
            - Ordered infusion: 72 x 12 = 864 units;
            - Supplied: Heparin 12,500 units in 250 ml
            - Set IV pump for 17.3 ml/hr
    - When third dose of Nitroglycerin sublingual does not effectively relieve chest pain, students should administer Nitroglycerin IV (Scan **QR Code: Nitro IV** for medication label)
        - The following math calculations are required:
            - Ordered: Nitroglycerin 5 mcg/minute
            - Supplied: Nitroglycerin 50 mg in 250 ml
            - Calculate: this means Nitroglycerin is supplied as 200 mcg/ml

        - Calculate: 5 mcg/min x 60 = 300 mcg/hr so set the pump for 1.5 ml/hr
    - Every 5 minutes the dose of Nitroglycerin can be increased by 5 mcg/min up to 20 mcg/min until there is reduced chest pain or hypotension occurs (so students should increase IV pump rate by 1.5 ml/hr every 5 minutes if indicated)
    - Students should be closely monitoring the blood pressure for potential hypotension.

- Technician Prompts
    - Patient is becoming more concerned and anxious.
    - Initial patient responses can include:
        - "Now it hurts between my shoulder blades"
        - "I feel more winded... I can't catch my breath."
    - After the provider notifies the patient that an MI is occurring:
        - "I'm having a heart attack?! There must be a mistake... I'm having belly pain not chest pain!"
        - "I'm too young to have a heart attack."
        - "My dad died of heart attack when he was 50. Am I going to die too?"

- Facilitator Questions
    - Is it within the RN scope of practice to inform a patient she is having a "heart attack" or not? How should this be approached by the RN?
    - How will you prioritize the new orders?
    - How is cardiac monitoring different from an ECG?
    - What does a "STEMI" on the ECG results indicate?
    - Why is a STAT CXR ordered? (To rule out AAA)
    - Why are 2 large bore IVs ordered? (Nitroglycerin is not compatible with other medications.)
    - Why is time of the essence in implementing the STEMI protocol?
    - Who can you call for assistance in implementing the new orders?

- As students prepare medications:
  - What is the purpose of this medication? What are your pre-assessments? What will you monitor after administering this medication?
  - What will you assess at the IV site before administering IV medications? Why are there 2 IV sites ordered? (Nitroglycerin IV is not compatible with the other medications.)

- Tabbed iPad Prompts & Content
  - Level Up
    - When the Level Up tab is tapped, the iPad reads, "Level up by executing the new orders and administering medications."
    - **QR Code: Patient ID**; **QR Code: Aspirin**; **QR Code: Nitro SUBL**; **QR Code: Nitro IV**; and **QR Code: Heparin IV** must be scanned for the Level Up to occur.
    - The Level Up happens automatically after the orders are reviewed all of the above QR Codes are scanned.
      - At that time, the iPad content will read, "Cardiology consult complete. You have new orders to review."

# HISTORY AND PHYSICAL

**Name: Mario I. Franco**

MR#: 1316
DOB: 07/16/19XX

**CHIEF COMLAINT:** Abdominal pain and indigestion

**HISTORY OF PRESENT ILLNESS:** Maria presented to the Emergency Room with abdominal pain and indigestion that she related to a sub sandwich that she ate for lunch. However, she also complained of associated symptoms of diaphoresis and dyspnea, so a STAT EKG and cardiac enzymes were ordered.

**PAST MEDICAL/SURGICAL HISTORY:** Maria has a history of hyperlipidemia, diabetes mellitus Type 2 and hypertension. No previous surgeries.

**ER/HOSPIALIZATIONS IN THE LAST 12 MONTHS:** None

**MEDICATIONS:** Metformin, Lisinopril, and Lipitor

**ALLERGIES:** Shellfish

**FAMILY MEDICAL HISTORY:** Father had MI age 50

**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 feelings of indigestion.

**Cardiovascular:** Denies chest pain and palpitations. No history of murmur or valve disorder. History of hypertension and hyperlipidemia.

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

**Gastrointestinal:** Denies change in appetite, weight gain/loss. New onset indigestion and heartburn that she describes as a "burning sensation above her belly button" that she rates as a 9/10 and relates to a sub sandwich she ate 45 minutes ago

**Endocrine:** History of diabetes mellitus. Denies polydipsia or polyuria.

**PHYSICAL EXAM:**

**Vital signs:** BP= 108/70, T= 37.5C, P= 120, R= 20, O2= 91% on RA

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

**General Appearance:** 47-year-old female 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. S4 present.

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

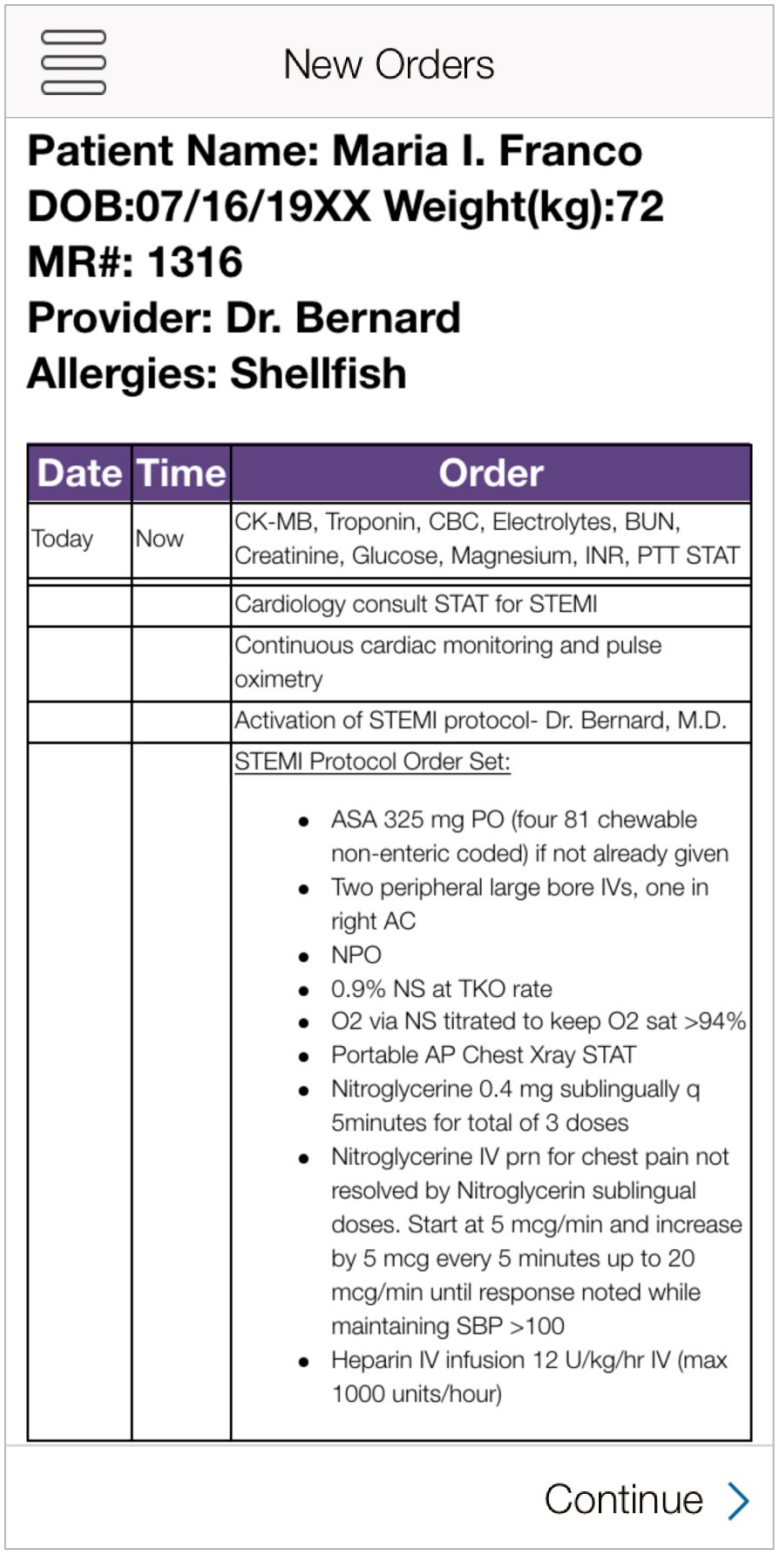
**Gastrointestinal/abdomen:** Epigastric tenderness with mild guarding. Bowel sounds positive in four quadrants.

**Genitourinary:** No CVA tenderness.

**ASSESSMENT/PLAN:** STAT EKG and cardiac enzyme results. If positive, STAT cardiac consult.

Electronically Signed - Dr. Bernard, MD

# NEW ORDERS



New Orders

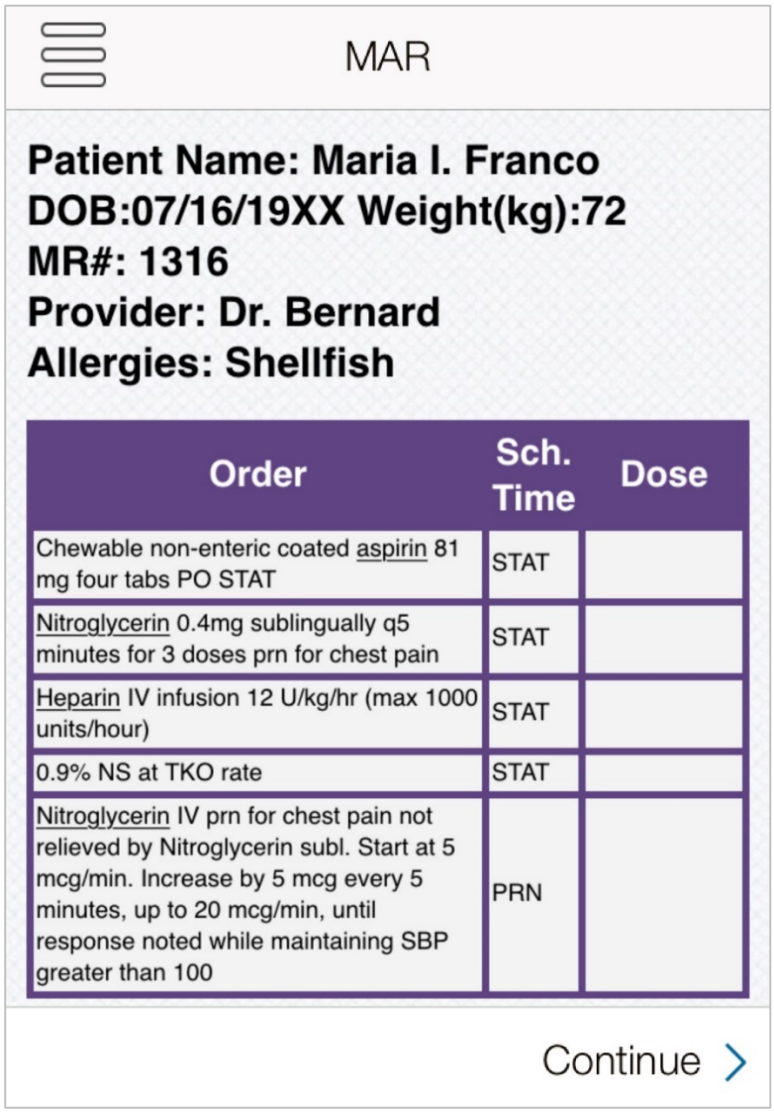
**Patient Name: Maria I. Franco**
**DOB:07/16/19XX Weight(kg):72**
**MR#: 1316**
**Provider: Dr. Bernard**
**Allergies: Shellfish**

| Date | Time | Order |
|---|---|---|
| Today | Now | CK-MB, Troponin, CBC, Electrolytes, BUN, Creatinine, Glucose, Magnesium, INR, PTT STAT |
| | | Cardiology consult STAT for STEMI |
| | | Continuous cardiac monitoring and pulse oximetry |
| | | Activation of STEMI protocol- Dr. Bernard, M.D. |
| | | STEMI Protocol Order Set:<br>• ASA 325 mg PO (four 81 chewable non-enteric coded) if not already given<br>• Two peripheral large bore IVs, one in right AC<br>• NPO<br>• 0.9% NS at TKO rate<br>• O2 via NS titrated to keep O2 sat >94%<br>• Portable AP Chest Xray STAT<br>• Nitroglycerine 0.4 mg sublingually q 5minutes for total of 3 doses<br>• Nitroglycerine IV prn for chest pain not resolved by Nitroglycerin sublingual doses. 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<br>• Heparin IV infusion 12 U/kg/hr IV (max 1000 units/hour) |

Continue >

# MAR

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



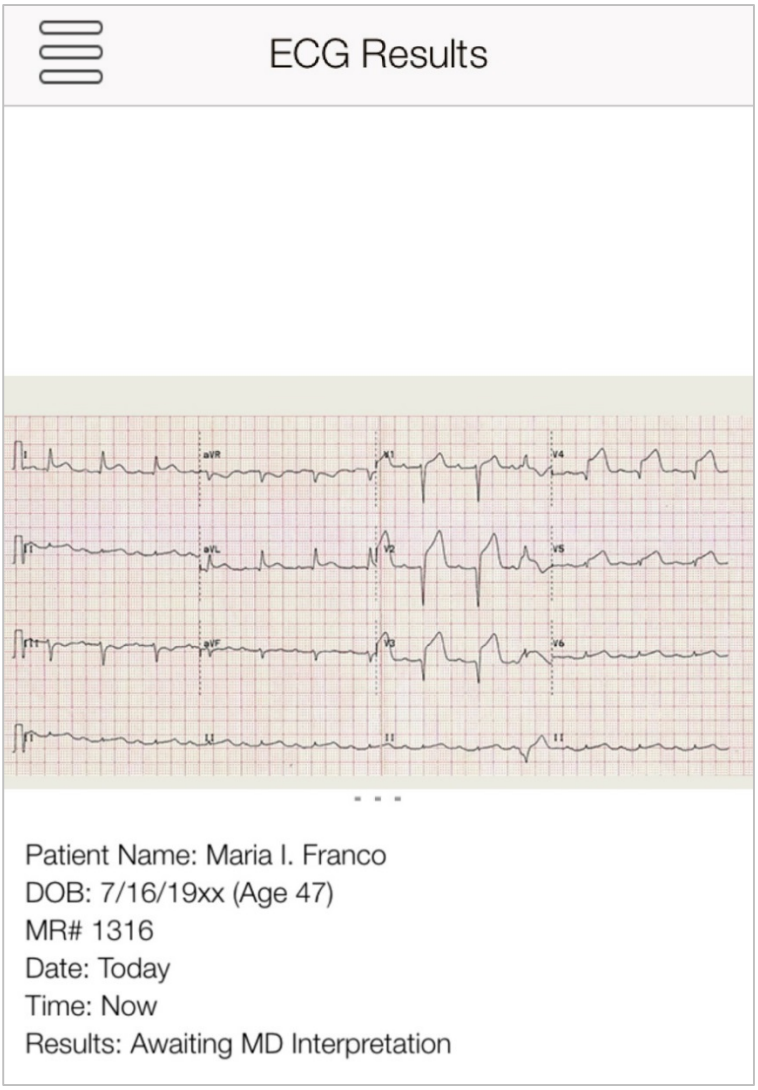
MAR

**Patient Name: Maria I. Franco**
**DOB:07/16/19XX Weight(kg):72**
**MR#: 1316**
**Provider: Dr. Bernard**
**Allergies: Shellfish**

| Order | Sch. Time | Dose |
|---|---|---|
| Chewable non-enteric coated aspirin 81 mg four tabs PO STAT | STAT | |
| Nitroglycerin 0.4mg sublingually q5 minutes for 3 doses prn for chest pain | STAT | |
| Heparin IV infusion 12 U/kg/hr (max 1000 units/hour) | STAT | |
| 0.9% NS at TKO rate | STAT | |
| Nitroglycerin IV prn for chest pain not relieved by Nitroglycerin subl. Start at 5 mcg/min. Increase by 5 mcg every 5 minutes, up to 20 mcg/min, until response noted while maintaining SBP greater than 100 | PRN | |

Continue

## ECG RESULTS




## LEVEL UP

- When the Level Up tab is tapped, the iPad reads, “Level up by executing the new orders and administering medications.”
- **QR Code: Patient ID**, **QR code: Aspirin, QR Code: Nitro SubL**, **QR Code: Nitro IV**, and **QR Code: Heparin IV** must be scanned for the Level Up to occur.
- The Level Up happens automatically after all of the above QR Codes are scanned.

- At this time, the iPad content will read, “Cardiology consult complete. You have new orders to review.”

STATE 3

# CARDIOLOGY CONSULT COMPLETE & NEW ORDERS

- Patient Overview
    - Patient is very anxious after new orders are received from the cardiologist for a STAT cardiac catheterization and probably angioplasty with surgical prep orders.
- Expected Student Behaviors
    - Prioritize and organize new pre-op orders according to timeframe (facilitator should communicate anticipated procedure time is in 30 minutes.)
    - Recognize patient is allergic to shellfish and implement orders related to iodine reaction
    - Review lab results received and notice that creatinine is elevated, requiring “renal protection” orders to be implemented
    - Obtain informed consent within RN scope of practice
    - Titrate IV Nitroglycerin according to patient response
        - Patient becomes hypotensive as orders are being implemented so Nitroglycerin IV should be decreased by 5 mcg/min = decreased by 1.5 ml/hr.
    - Administer Montelukast PO (Scan **QR Code: Montelukast** for medication label)
    - Administer Famotidine IV 15 minutes prior to anticipated procedure time (Scan **QR Code: Famotidine IV** for medication label)
        - Read drug information first by clicking on link in MAR.
        - Medication should be diluted in 10 ml saline and administered IVP over 1-2 minutes while Heparin is stopped
    - Administer Promethazine IV 15 minutes prior to anticipated procedure time (Scan **QR code Promethazine IV** for medication label)
        - Read drug information first by clicking on link in MAR.
        - Should draw up 12.5 mg (20 ml according to vial label provided)

- Review Chest X ray

- Technician Prompts
  - Patient is becoming more concerned and anxious.
  - When informed consent form provided, patient responses can include:
    - "What does this form mean?"
    - "Will I need blood or not?"
    - "I'm afraid of this surgery!!"
    - "Will they put me to sleep for this procedure?"
    - "The doctor said I'm going to have a catheterization... what's going to happen to me?"
  - When hair is clipped, patient responses can include:
    - "Why do you have to shave my hair down there? How embarrassing!"
  - As Nitroglycerin IV dosage is increased, patient responses can include:
    - "I'm feeling a little lightheaded."
    - If students don't notice, continue to complain of increasing dizziness while gradually decreasing SBP <100.
    - If students continue to ignore your complaints, become increasingly confused to the point of fainting.

- Possible Facilitator Questions
  - What is a cardiac catheterization?
  - What kind of anesthesia is used during a catheterization/angioplasty?
  - What is an angioplasty? How will this procedure help Maria?
  - How will you prioritize the new orders received?
  - Does Maria have any allergies?
  - Review the lab results. What is Maria's renal status?
  - As students prepare to administer Famotidine, Montelukast and Promethazine:
    - What is the purpose of this medication?

        - Which IV site will you use to administer these medications? (Nitroglycerin IV is not compatible with the other medications so the Heparin must be paused while these are given IVP.)

    - After students have cared for the patient appropriately by both implementing the new cardiology orders and managing the hypotension, scan the **QR Code: Facilitator**. This will cause the Exit" tab to appear. At that point, ask students to provide an SBAR report to the cath lab RN.

- Tabbed iPad Prompts & Content Changes

    - Level Up

        - When the Level Up tab is tapped, the iPad reads, "Scan the facilitator code when your patient is ready for the Cath Lab."

        - After **QR Code: Facilitator** is scanned, the iPad reads, "The facilitator has given permission to proceed to the next level."

# NEW ORDERS

## New Orders

**Patient Name: Maria I. Franco**
**DOB:07/16/19XX Weight(kg):72**
**MR#: 1316**
**Provider: Dr. Bernard**
**Allergies: Shellfish**

| Date | Time | Order |
|---|---|---|
| Today | Now | CK-MB, Troponin, CBC, Electrolytes, BUN, Creatinine, Glucose, Magnesium, INR, PTT STAT |
| | | Cardiology consult STAT for STEMI |
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| | | |
|---|---|---|
| Today | Now | Prepare for cardiac catheterization with probable angioplasty STAT --------- Dr. Forssmann, MD |
| | | Surgical prep: Cardiac Catheterization with Radiographic Contrast Sensitivity Prophylaxis for Emergent Procedure Order Set:<br>• Confirm signed informed consent in chart<br>• Clippers to remove hair at surgical site: bilateral groin<br>• If patient has a history of minor reaction to iodine or other contrast (hives):<br>  ◦ Famotidine (Pepcid) 20 mg IVP over 1 minute 15 minutes prior to procedure<br>  ◦ Montelukast (Singulair) 10 mg by mouth STAT<br>  ◦ Promethazine (Phenergan) 12.5 mg IVP over 1 minute 15 minutes prior to procedure<br>• Renal protection:<br>  ◦ If serum creatinine greater than 1.5 md/dL or GFR less than 60 or patient sensitive to contrast, use Renal Protective Contrast Media<br>  ◦ O.9% NS 3.5ml/kg/hour over one hour, start one hour prior to procedure and continue at 1.2 ml/kg/hr during the procedure and continue for 6 hours post procedure<br>  ◦ Hold Metformin(Glucophage) day of the procedure |

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: Maria I. Franco**
**DOB:07/16/19XX Weight(kg):72**
**MR#: 1316**
**Provider: Dr. Bernard**
**Allergies: Shellfish**

| Order | Sch. Time | Dose |
|---|---|---|
| Chewable non-enteric coated aspirin 81 mg four tabs PO STAT | Given 15min ago | |
| Nitroglycerin 0.4mg sublingually q5 minutes for 3 doses prn for chest pain | Given: -15min ago -10min ago -5min ago | |
| Heparin IV infusion 12 U/kg/hr (max 1000 units/hour) | Started 10min ago | |
| 0.9% NS at TKO rate | Started 15min ago | |
| Nitroglycerin IV prn for chest pain not relieved by Nitroglycerin subl. Start at 5 mcg/min. Increase by 5 mcg every 5 minutes, up to 20 mcg/min, until response noted while maintaining SBP greater than 100 | Started 10min ago | |
| Famotidine 20 mg IVP 15 minutes prior to procedure | Due 15min prior to procedure | |
| Montelukast 10 mg PO STAT | STAT | |

| | | |
|---|---|---|
| Promethazine 12.5 mg IVP over 1 minute 15 minutes prior to procedure | Due 15min prior to procedure | |
| Hold Metformin the day of the procedure | STAT | |

Continue >

## PROGRESS NOTES

Progress Notes

**Patient Name: Maria I. Franco**
**DOB:07/16/19XX MR#: 1316**

**Progress Notes**

| Date & Time | Note |
|---|---|
| Today - 5 minutes ago<br><br>Cardiologist Consult | Patient presented to ER complaining of heartburn and severe indigestion with mild dyspnea and diaphoresis. STAT ECG shows STEMI and Troponin is elevated. STEMI protocol initiated.<br>Plan: STAT Cardiac catheterization with probable angioplasty.<br>---------- Dr. Forssmann, MD. |

Continue >

# LABS-DIAGNOSTICS

## Labs-Diagnostics

Patient Name: Maria I. Franco
DOB: 7/16/19XX
MR#: 1316

| Complete Blood Count (CBC) | | | |
|---|---|---|---|
| Date / Time | Today / Now | Units | Reference Range |
| **WBC** | 6 | x10³/mm³ | 4.5 – 11.0 |
| **RBC** | 4.2 | x10⁶/mm³ | F: 4.2-5.4/M: 4.6-6.2 |
| **HGB** | 13 | g/dl | (F) 13.0 - 15 |
| | | | (M) 14.0 - 17 |
| **HCT (PCV)** | 40 | % | (F) 38 - 47 |
| | | | (M) 42 - 52 |
| **MVC** | 85 | fL | 80 - 90 |
| **MCH** | 30 | pg | 27 - 32 |
| **MCHC** | 34 | % | 32 – 36 |
| **RDW** | 12.5 | % | 11.5 – 14.5 |
| **Platelet** | 263 | x10³/mm³ | 150 - 450 |
| **MPV** | 8 | fL | 6.0 – 12.0 |

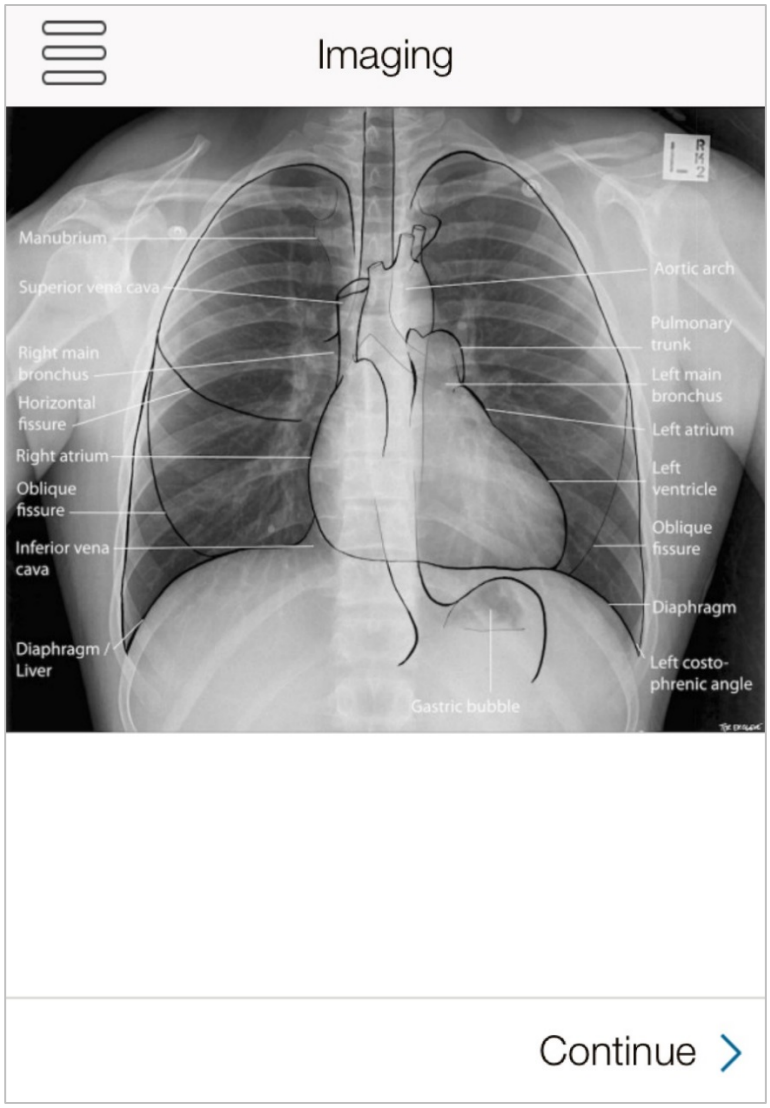
| Basic Metabolic Profile (BMP/Chem. 7*) | | | |
|---|---|---|---|
| Date / Time | Today / Now | Units | Reference Range |
| **Glucose*** | 142 | mg/dl | Fasting 70 - 105 |
| **Calcium*** | 9.2 | mg/dl | 8.5 - 10.5 |
| **Sodium*** | 144 | mmol/L | 135 - 145 |
| **Potassium*** | 5 | mmol/L | 3.5 – 5.3 |
| **Chloride*** | 103 | mmol/L | 98 - 108 |
| **Magnesium** | 2.1 | mEq/L | 1.5-2.4 |
| **BUN*** | 30 | mg/dl | 10-25 |
| **Creatinine*** | 1.6 | mg/dl | F: 0.4-1.4/M: 0.5-1.5 |

| Cardiac Panel | | | |
|---|---|---|---|
| Date / Time | Today / Now | Units | Reference Range |
| **CK-MB** | 6 | Ng/ml | 0.0 – 5.0 |
| **Troponin - T** | 2.4 | ug/L | 0.0 – 0.1 |

| Coagulation | | | |
|---|---|---|---|
| Date | Today | Units | Reference Range |
| Time | Now | | |
| **PT** | 12 | sec | 11.0 – 12.5 |
| **INR** | 1 | | 1.0 (non-medicated) |
| **aPTT** | 30 | sec | less than 35.0 |

Continue ›

# IMAGING


Imaging
Manubrium
Superior vena cava
Right main bronchus
Horizontal fissure
Right atrium
Oblique fissure
Inferior vena cava
Diaphragm / Liver
Aortic arch
Pulmonary trunk
Left main bronchus
Left atrium
Left ventricle
Oblique fissure
Diaphragm
Left costo-phrenic angle
Gastric bubble
Continue

# INFORMED CONSENT

Informed Consent

## Patient Informed Consent Form

1. I consent to, authorize and direct Dr. _____ (my physician) and his/her chosen associates or assistants to perform the following procedures(s) on me_____ 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 hat maybe 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 live, 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 and Time

Continue >

## LEVEL UP

Scan the facilitator code when your patient is ready for the Cath Lab.

- After **QR Code: Facilitator** is scanned, the iPad reads, “The facilitator has given permission to proceed to the next level.”

STATE 4

# HANDOFF REPORT TO CATH LAB RN

- Expected Student Behaviors
    - Provide handoff report in SBAR format to the cath lab nurse
- Tabbed iPad Prompts & Content Changes

## LEVEL UP

“Please provide a handoff report to the cath lab nurse.”

## 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 objective: Administer cardiac related medications safely: Nitroglycerin sublingually and IV; Aspirin; Heparin IV
    a. Identify the mechanism of action for each these medications and how they helped Maria in this scenario
    b. What have you learned about the titration of IV Nitroglycerin?
    c. What have you learned about IV medication compatibilities?
3. Review understanding of learning objective: Interpret a basic ECG pattern and cardiac-related lab results
    a. What did you learn about placing ECG leads?
    b. What did you learn about how an ECG can indicate complete blockage of a coronary artery?
    c. How was Troponin used in the management of this patient with new onset chest pain?
    d. Compare/contrast Troponin and CK-MB?
    a. How did the lab results impact Maria's care?
4. Review understanding of learning objective: Prioritize nursing care for a female patient with new onset chest pain
    a. How did the STEMI finding on the ECG affect your prioritization of care for Maria?
    b. Were you able to delegate any of the orders?
    c. Who can you use as a resource to help you complete the orders in a timely manner?
    d. How did you prioritize the pre-op orders? If you could "do over," is there anything you would have done differently?

5. Review understanding of learning objective: Incorporate evidence-based practice while caring for a patient with emergent coronary artery disease requiring cardiac catheterization.
    a. What is the expected AHA guideline for timeline for assessing and treating a patient presenting with chest pain to the point they receive a cardiac catheterization?
6. Review understanding of learning objective: Communicate therapeutically with a patient experiencing an acute health care crisis
    a. What cues did you notice indicating that Maria needed therapeutic communication?
    b. Denial is a common reaction when someone is experiencing a heart attack. What symptoms of denial did Maria demonstrate?
    a. How did you address Maria's anxiety?
    b. What type of therapeutic communication did you use? Was it effective?
    c. If you could "do over," would you change how you communicated with Maria? How?
7. Review understanding of learning objective: Report complete, accurate, and pertinent information to the health care team
    a. What did you include in the handoff report to the nurse in the catheterization lab?
    b. As a group, create a "best response" SBAR shift to shift report for Maria.
8. Tie the scenario back to the nursing process in a large group discussion. Concept mapping can be used to facilitate discussion.
    a. Identify 3 priority nursing problems you identified for Ms. Franco.
    b. Create a patient centered goal for each nursing problem you identified.
    c. Discuss focused assessments for each nursing problem.
    d. Discuss 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?
9. Summary/Take away Points
    a. "Today you cared for a female patient from the moment she presented to the ED with chest pain until you transferred her to the cath lab. What is one take-away

point you learned from participating in this scenario that you will take 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

Medication information from National Library of Medicine: Daily Med at http://dailymed.nlm.nih.gov/dailymed/

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

Heart sounds used with permission from Thinklabs Medical, LLC, Centennial, CO at www.thinklabs.com

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