HEART FAILURE

Estimated Time: 30 minutes • Debriefing Time: 30 minutes



Patient Name: Hector Fernandez

SCENARIO OVERVIEW

Hector Fernandez is a 62-year-old male patient with chronic heart failure. He was admitted to the hospital yesterday for dehydration, for which he received IV Fluids, resulting in the development of pulmonary edema. Two hours prior to the start of this shift, the nurse administered STAT IV furosemide. The patient refuses to wear his BiPAP or non-rebreather mask.

Before administering scheduled medications, students should notice that lab work has not been drawn since prior to the administration of IV Lasix. The patient begins to develop chest pressure and students should obtain a STAT ECG, which shows the development of PVCs. A 5-minute timer begins, and as the patient becomes increasingly more confused, he goes into Vfib 5 minutes later as the rapid response team arrives. The facilitator can then lead the students in performing CPR and assisting in a "code" situation.

LEARNING OBJECTIVES

- 1. Prioritize nursing care for a patient with heart failure
- 2. Incorporate evidence-based practice while caring for a patient with heart failure
- 3. Administer cardiac related medications safely
- 4. Communicate therapeutically with a patient experiencing an acute health care event
- 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

NURSING FUNDAMENTALS

- Maintain a safe, effective care environment for adults of all ages
- Use appropriate communication techniques
- Use the nursing process

• Adapt nursing practice to meet the needs of diverse patients in a variety of settings

PHARMACOLOGY

• Apply components of the nursing process to the administration of cardiovascular system drugs

NURSING HEALTH ALTERATIONS

• Plan nursing care for patients with alterations in the cardiovascular system

COMPLEX HEALTH ALTERATIONS 1

• Evaluate nursing care for patients with coronary artery disease

ADVANCED SKILLS

- Administer IV push medications
- Interpret basic electrocardiogram patterns

COMPLEX HEALTH ALTERATIONS II

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

SIMULATION LEARNING ENVIRONMENT & SET-UP

PATIENT PROFILE

Name: Hector Fernandez	Admitting Diagnosis: Dehydration (E86.0)
DOB: 09/06/19XX	Chronic Medical Diagnoses: Congestive
Age: 62	Heart Failure (I50.9); Hypertension (I10); Hyperlipidemia (E78.5)
MR#: 41219	Code Status: Full code
Gender: Male	Ethnicity: Hispanic
Height: 175 cm (5 ft 10 in)	Spiritual Practice: Catholic
Weight: 86.4 kg (190 lbs)	Primary Language: English
Allergies: Penicillin (Hives)	

EQUIPMENT/SUPPLIES/SETTINGS

Environment

• Hospital room with phone available

Patient

- Wearing a gown with oxygen via nasal cannula on
- ID band with **QR Code: Patient ID**
- Cardiac monitoring in place
- QR codes placed in various anatomical locations on chest, heart and leg

Monitor/Simulator Settings

- Vitals: Blood Pressure 138/88, respiratory rate 20, heart rate 88, temp 37.5, pain 0
- Lung sounds: fine crackles in posterior bases
- Heart sounds: S3, regular rhythm

Supplies

• Equipment to obtain vitals including oxygen saturation

- BiPAP machine and mask (if available; otherwise QR Code provided)
- Crash cart

Medications

• See QR codes below for available medications

QR CODES



CHEST QR CODES

Cut along the dotted lines to create a folded QR code for each anatomical location. Fold each section along the solid line to create a bi-fold of the diagram and QR code, then apply to the simulator in the appropriate anatomical location.







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.
 - Describe how a QR Code sound will work in the scenario. For the most authentic sound experience, student should use ear buds or the ARISE "stethoscope" for all QR Codes with the following symbol: □. Example:
 QR Code: Chest Anterior 1 □
 - Medication Hyperlinks Medications are underlined and hyperlinked to DailyMed, which is a medication reference housed by the National Library of Medicine. Students can click on these links during the simulation for up-to-date medication content, labels, and package insert information.
- 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 clinical concerns after listening to shift to shift report?
- Play the "Patient" video
 - Possible Facilitator Question
 - What are your priority concerns after meeting the patient?
- Review initial tabbed content:

HISTORY AND PHYSICAL

See H&P in Appendix A

ORDERS

Provider Orders

Date	Time	Order
Yesterday	On admission	Admit to Virtual Medical Center Cardiac Center unit
		IV Fluid Bolus 0.9% NS with 20 mEq K+ at 500 ml/hour for one hour, followed by maintenance rate of 150 ml/hr
		Continuous cardiac monitoring
		12 lead STAT ECG PRN for new onset chest pain
		Administer O2 via nasal cannula to maintain pulse oximetry 95% or greater
		Notify HCP if cannot maintain O2 sat > 90% on oxygen via NC
		Cardiac diet: 2g sodium, low cholesterol, low fat
		Weight on admission and daily weights
		Physical therapy consult
		Aspirin enteric coated 81mg one tab PO every day
		Acetaminophen 500 mg PO 2 tabs every 4 hours for pain or fever PRN
		Furosemide 40mg PO every 12 hours
		Metoprolol 12.5 mg PO daily
		Lisinopril 10mg PO daily
		Atorvastatin 40 mg PO daily
		CBC with differential, Chem 7, Magnesium, BNP, Liver Enzymes, TSH, Troponin
		Echocardiogram
		TED hose on while awake
		Consult with social worker for advanced directives
		Consult for cardiac rehabilitation on discharge
		On discharge, provide and document heart failure instructions: diet and fluid restrictions, activity, medications, daily weight

		recording, worsening symptoms, and followup appointment after discharge
		Dr. M. Cordoba, M.D
Today	3 hours ago	Respiratory Therapy consult STAT
		ABG STAT
		12 lead ECG STAT
		Portable CXR STAT (PA and lateral)
		Call provider with STAT results
		Dr. M. Cordoba, M.D
Today	2 hours ago	Furosemide 80 mg IVP STAT
		Discontinue 0.9% NS with 20 mEq K+
		Dr. M. Cordoba, M.D

MAR

Medication Administration Record

Scheduled		
Furosemide 80 mg IVP STAT		Last Given 2 hours ago
Aspirin 81 mg EC PO daily	Due Today	Last Given
	0800	Yesterday 0800
Furosemide 40 mg PO twice daily	Due Today	Last Given
	0800	Yesterday 0800
Metoprolol 12.5 mg PO daily	Due Today	Last Given
	0800	Yesterday 0800
Lisinopril 10 mg PO daily	Due Today	Last Given
	0800	Yesterday 0800
Atorvastatin 40 mg PO daily	Due Today	Last Given
	2100	Yesterday 2100

Continuous Infusion		
		Started
PRN		
Acetaminophen 500 mg PO PRN every 4 hours for pain of	or fever	Last Given
Discontinued		
0.9% NS with 20 mEq K+ at 500 ml/hour for one hour,	Discontinued	Last Given
followed by maintenance rate of 150 ml/hour		2 hours ago

DAILY RECORD

Daily Record

Vitals	On admission	2 hours ago	1 hour ago	
Pulse	102	115	88	
Resp. Rate	22	35	20	
BP Systolic	85	165	134	
BP Diastolic	50	90	80	
Temp (°C)	37.4	37.5	37.4	
O2 Saturation (%)	95	85	90	
Applied Oxygen	RA	RA	5 L NC	
Pain	2	0	0	

24 HR I & O (ml)	Yesterday		
Input	4500 ml		
Output	1000 ml		
Total			

S	I	Μ	U	L	Α	Т	I	0	N

Daily Weight (kg)	Yesterday on admission		
	86.4		

VITAL SIGNS

Screen is open for entry

Simulator values set to: blood pressure 138/88, respiratory rate 20, heart rate 88, temp 37.5, pain 0

PROGRESS NOTES

Progress Notes

Date/Time	Note
Today/ 3 hours ago Respiratory Therapy	Received STAT order to evaluate for acute shortness of breath. Patient has a history of chronic heart failure and was admitted for dehydration. He received an IV fluid bolus and has been receiving IV fluid therapy at 150ml/hour for over twelve hours. On initial assessment: respiratory rate 35, Heart rate 115, O2 sats 85% with crackles in bases up to medial lobes posteriorly, anteriorly and medially. Applied BiPAP after educating the patient on benefits or therapy, but patient adamantly refused to wear mask despite several attempts. Reassessed O2 sat after applying nasal canula at 5L/min and was 88%. Notified nurse to continue to encourage BiPAP therapy and recommend STAT IV Lasix order from provider. Evelyn O'Connor, RRT
Today/ 1 hour ago Respiratory therapy	Reassessed patient 1 hour after receiving STAT IV Lasix. Reassessment: O2 sat has improved to 94% on non-rebreather at 10L/min, respiratory rate 20, heart rate 88, lung sounds with fine crackles only in bases now. Continued to encourage patient and family to use BiPAP as ordered. May use nasal cannula at 5L/min if patient refuses nonrebreather mask. Evelyn O'Connor, RRT

LABS

Laboratory Results

Arterial Blood Gas (ABG)						
	2 hrs ago	Units	Reference Range			
рН	7.35		7.35-7.45			
PaCO ₂	45	mmHg	35-45			
PaO ₂	80	mmHg	80-100			
HCO ₃	25	mmol/L	22-26			
Base Excess	1	mmol/L	0+/-3			
SaO ₂	88% on RA	%				

CBC with Differential							
	Yesterday on admission	Units	Reference Range				
WBC	8.0	x10 ³ uL	F: 4.7-10.3/M: 4.5-10.5				
RBC	5.1	x10 ⁶ uL	F: 4.0-4.9/M: 4.0-4.9				
Hgb	10.3	g/dL	F:10.9-13.3/M:11.0-13.3				
НСТ	49.3	%	F: 33.0-39.6/M: 32.7-39.3				
MCV	72.2	fL	F: 78.5-90.4/M: 76.5-90.6				
МСН	27.8	pg	25-33				
МСНС	33	g/dL	31-37				
RDW	12.5	%	F: 11.6-13.4/M: 12.0-14.0				
Platelet	224	x10 ⁹ uL	F: 183-368/M: 194-364				
MPV	9.8		7.4-10.4				
Neutro	50		31-57				
Lymph	40		35-61				
Mono	5		4-7				
Eos	4		2-4				
Baso	1		0-1				

Chem 7			
	Yesterday on admission	Units	Reference Range
Glucose	100	mg/dL	Fasting 70-150
BUN	40	mg/dL	10-25
Creatinine	1.6	mg/dL	F: 0.4-1.4/M: 0.5-1.5
Sodium	156	mEq/L	135-145
Potassium	3.5	mEq/L	3.5-5.3
Chloride	100	mEq/L	98-108
Carbon Dioxide	25	mEq/L	23-27

BNP			
	Yesterday on admission	Units	Reference Range
BNP	320	Pg/mL	Below 100 pg/mL: no heart failure.
			100-300 pg/mL: suggest heart failure is present.
			Greater than 300 pg/mL: mild heart failure.
			Greater than 600 pg/mL: moderate heart failure.
			Greater than 900 pg/mL: severe heart failure

Liver Enzymes			
	Yesterday on admission	Units	Reference Range
ALT (SGPT)	45	u/L	4-36
AST (SGOT)	65	u/L	0-35

TSH			
	Yesterday on admission	Units	Reference Range
TSH	8	uU/L	2-10

Troponin			
	Yesterday on admission	Units	Reference Range

$\Pi g/\Pi I = 0.1$

DIAGNOSTICS

Echocardiogram

Study Date: Yesterday Priority: Routine In/out: Inpatient Referring: Dr. Hospita, MD History: History of heart failure Reasons: Increased fatigue and recent falls

INTERPRETATION

General:	A routine transthoracic echocardiogram was performed. Fully diagnostic study.
Aortic Valve:	The aortic valve is normal and trileaflet.
Left Atrium:	The left atrium is normal. LA M-mode: 3.3 cm.
Mitral Valve:	The mitral valve is normal.
Right Atrium:	The right atrium is normal.
Right Ventricle:	The right ventricle is normal in size with normal function.
Tricuspid Valve:	The tricuspid valve is normal. There is mild tricuspid regurgitation which is centrally directed, PASP= 27 mmHg, RAP=10mmHg.
Pulmonic Valve:	The pulmonic valve is normal.
Pulmonary Artery:	The pulmonary artery is normal.
Atrial Septum:	The interatrial septum is normal.
Left Ventricle:	The left ventricle is increased in size with decreased function. The ejection fraction is 39%.

Walls	Chamber	Systolic Function
IVSd: 1cm 0.6-1.1cm	LVIDd: 4.5cm 3.7-5.6 cm	FS: 47 %
IVSs: 1.4cm 0.8-2.0cm	LVIDdI: 2.24cm/m2	EF: 39%
PWd: 0.9cm 0.6-1.1cm	LVIDs: 2.4cm 1.8-4.2 cm	
PWs: 1.3cm 0.8-2.0cm	LVIDsI: 1.19cm/m2	
	RWT: 0.4 <0.42	

CONCLUSION

Left ventricle is enlarged with decreased ventricular function consistent with systolic heart failure with decreased ejection fraction of 34%. No regional wall motion abnormalities are noted in the left ventricle. Normal right ventricular size with normal function. Normal left atrium. Normal right atrium. Normal, trileaflet aortic valve. Normal mitral valve. Normal tricuspid valve. Normal PA pressure. Normal pulmonic valve.

Craig H. Scott, MD, FACC, FASE

IMAGING

Imaging Report

DESCRIPTION: Portable x-ray to evaluate acute shortness of breath in 62-year-old male with history of chronic heart failure.

EXAM: Portable AP chest

REASON FOR EXAM: Shortness of breath/asthma

COMPARISON EXAM: None

TECHNIQUE: 1.5 mAS @ 125 kvp

DISCUSSION: The hilar and mediastinal vessels are of normal appearance. Left ventricular hypertrophy. Interstitial and alveolar edema present bilaterally in bases of lungs consistent with venous pulmonary hypertension.

IMPRESSION: Moderate congestive heart failure with left ventricular hypertrophy, pulmonary edema, and venous pulmonary hypertension.



ECG



PATIENT EDUCATION

A patient education handout on heart failure is available here and a printable version is also available in Appendix B

LEVEL

The State level is displayed

SCANNER

Students tap this tab to scan various QR codes within the scenario.

EXIT

The iPad reads, "Are you sure you want to exit? All data will be lost."

• If "No" is selected, the iPad will return to the tabbed content.

• If "Yes" is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

STATE 1 PATIENT ASSESSMENT

- Patient Overview
 - Patient was admitted to the medical surgical unit yesterday for dehydration related to diuretic therapy and received IV Fluids. He later developed pulmonary edema and received IV push furosemide. He continues to refuse to wear his BiPAP mask or non-rebreather mask. Students should review prior lab work before assessing the patient and administering his morning medications. After the expected behaviors are met, the Facilitator QR code should scanned which causes the scenario to progress to State 2.
- Expected Student Behaviors
 - Introduce themselves to the patient
 - Verify patient identity with name and date of birth and scan QR Code: Patient ID
 - o Communicate therapeutically regarding patient concerns
 - Obtain vital signs
 - Perform a general survey assessment on primary concerns
 - Perform a focused respiratory physical assessment by scanning QR
 codes: Chest

 at various anatomical locations on anterior, medial and posterior chest
 - Facilitator Note: Fine crackles can be heard in lower posterior bases
 - Perform a focused cardiac assessment by scanning **QR code: Heart** □
 - Facilitator Note: An S3 is auscultated
 - Perform a focused lower extremity assessment for edema by scanning QR
 Code: Leg
 - Facilitator Note: Stasis dermatitis is demonstrated
 - Position patient appropriately
 - Administer oxygen appropriately
 - May administer scheduled medications or decide to call provider first

- Notify provider of abnormal findings using SBAR format
- Technician Prompts
 - Patient is feeling weak and has some shortness of breath. He continues to refuse his BiPAP and non-rebreather masks, but will consent to wearing the nasal cannula.
 - Initial patient responses can include:
 - "I feel better after they gave me that medicine in my vein."
 - "I don't like those masks! It makes me feel like I'm suffocating!"
 - "I feel so tired...."
 - "When will I be able to leave the hospital?"
- Suggested Facilitator Questions:
 - Do you have any concerns to communicate to the provider?
- Tabbed iPad Prompts & Content Changes
 - Students will level up to State 2 after they have scanned the QR codes:
 Facilitator, indicating they have performed the Expected Behaviors.

STATE 2 CHANGE IN PATIENT CONDITION

- Patient Overview
 - The patient begins to complain that his heart is "skipping beats" and then develops "chest pressure." Students should obtain a STAT ECG per orders already in place and call rapid response.
- Expected Student Behaviors
 - Place leads and obtain a STAT 12 lead ECG
 - Titrate oxygen and consider oxygen therapy devices to attempt to get O2 sat >95%
 - Facilitator note: students may note that although the respiratory therapist's progress note mentioned using a non-rebreather mask when patient refused BiPAP, an order was never received for using this device. Students may brainstorm how to address oxygenation status as the patient's condition is deteriorating
- Technician Prompts
 - Simulator programming:
 - Vital signs: O2 sats should be dropping into mid-80s
 - Cardiac monitoring: PVCs should be displaying > 6/minute
 - Patient is concerned about his heart.
 - Initial patient responses can include:
 - "What is wrong? Why is my heart skipping beats?"
 - "I'm beginning to feel a little chest pressure."
 - "Why do I have to have an ECG? Is my heart not working right?"
 - "Is this going to hurt?"
 - When students call for Rapid Response, ask for patient name and room number, and verify that "they are on their way."
- Facilitator Questions
 - Evaluate the ECG results and relate to Hector's current status.

- What are your clinical concerns at this point?
- Tabbed iPad Prompts & Content Changes
 - Students will automatically progress to State 3 after the ECG tab is tapped and "yes" is indicated that leads have been placed. This will set a 5-minute timer to automatically go State 3 where the rapid response team arrives.

ECG

Facilitator Note: Students will first be asked if they have attached the ECG leads.



STATE 3 PATIENT DETERIORATES

- Patient Overview
 - State 3 begins automatically 5 minutes after the student obtains the ECG in State 2. Students receive a message that the Rapid Response team has arrived, with a follow-up ECG automatically displaying that shows Ventricular fibrillation. Students should be instructed to set down the iPad, perform CPR, and participate in a code situation led by the facilitator.
- Expected Student Behaviors
 - Recognize that a deadly dysrhythmia is occurring and immediately begin CPR.
- Technician Prompts
 - Patient is unresponsive. Technician can role play the Rapid Response or Code team leader.
- Facilitator Questions
 - Evaluate the second ECG.
 - What is occurring during this rhythm?
 - What treatment is required to resolve this rhythm?
 - What are the characteristics of effective CPR?
 - Encourage the students to switch CPR providers every 2 minutes appropriately.
 - Assist students to use the Resuscitation Bag to appropriately to provide rescue breaths until the code team arrives.
 - Using ACLS Cardiac Arrest algorithm, assist students in:
 - Applying pads for the defibrillator
 - Viewing the rhythm
 - Assist in "charging" the defibrillator and providing a "shock"
 - Assist in administering IV Epinephrine (may scan QR Code: Epinephrine IV)

- Assist in administering IV Amiodarone (may scan QR Code: Amiodarone IV)
- Discuss potential reversible causes of this dysrhythmia ("5 H's and 5 T's"). Hector had both hypoxia and hypokalemia, and he potentially could have also developed respiratory acidosis or an MI.
- Tabbed iPad Prompts & Content Changes
 - Students may exit at any time during this state.
 - The ECG image that is automatically displayed on the iPad during this state (as if the Rapid Response team obtained it) is:



DEBRIEF

SUGGESTED QUESTIONS

- 1. Reaction: "How do you feel this scenario went?" (Allow students to vent their emotional reactions before delving into learning objectives.)
- 2. Review understanding of learning objectives: Prioritize nursing care for a patient with heart failure and incorporate evidence-based practice while caring for a patient with heart failure:
 - a. What were your clinical concerns when you initially assessed Mr. Fernandez?
 - b. How did you address your concerns?
 - c. Review the rhythm strips that you observed during the scenario.
 - i. What are common causes of PVCs?
 - ii. When are PVCs "benign" versus concerning?
 - iii. What is occurring to the cardiac output during Ventricular fibrillation?
 - iv. What ACLS measures are required for Ventricular fibrillation?
 - v. What are the rationale for providing CPR and defibrillation?
 - vi. What are the characteristics of quality CPR?
 - vii. Discuss the "5 H's and 5 T's." What were the potential reversible causes for Mr. Fernandez's dysrhythmia?
- 3. Review understanding of learning objective: Administer cardiac related medications safely
 - a. Explain important pre-assessments before administering various cardiac medications.
 - b. Discuss mechanism of action of IV Epinephrine and IV Amiodarone during cardiac arrest.
- 4. Review understanding of learning objective: Communicate therapeutically with a patient experiencing an acute health care event
 - a. How did you communicate therapeutically with Mr. Fernandez and his family member when his condition started to change?
 - b. Was it effective?

- c. If yOu could "do over," how would you communicate differently with Mr. Fernandez or his family member?
- 5. Review understanding of learning objective: Report complete, accurate, and pertinent information to the health care team
 - a. What information was important to communicate to the provider upon your initial assessment?
 - b. If you could "do over," would you communicate any differently to the provider?
- 6. Tie the scenario to learning objective: Develop a nursing plan of care for a patient with chronic heart failure experiencing hypoxia and PVCs.
 - a. Identify 3 priority nursing problems you identified.
 - 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?
- 7. Summarize/Take away Points: "In this scenario you care for a patient with chronic heart failure who was experiencing an acute exacerbation. What is one thing you learned from participating in this scenario that you will take into your nursing practice?" (Ask each student to share something unique from what the other students share.)

NOTE: Debriefing technique is based on INASCL Standard 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.



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

APPENDIX A: H&P

History and Physical

DATE: On admission

ADMITTED TO: Virtual Medical Center

CHIEF COMPLAINT: Dehydration and weakness

HISTORY OF PRESENT ILLNESS: Mr. Fernandez is a 62 y/o male is a direct admit from the nursing home to the cardiac unit for IV fluid treatment of dehydration. He has a history of chronic heart failure classified as NYHA Class II and has been receiving Lasix 40 mg twice daily. Digoxin was discontinued yesterday due to elevated serum levels. Mr. Fernandez describes no other associated symptoms such as chest pain, shortness of breath, dizziness, or palpitations. He was recently admitted to the skilled nursing facility due to frequent falls at home.

PAST MEDICAL/SURGICAL HISTORY: Diagnosed with a long-standing history of heart failure, hyperlipidemia, and hypertension.

ER/HOSPITALIZATIONS IN THE LAST 12 MONTHS: None

MEDICATIONS: Current medications at home include: Aspirin 81 mg daily, Digoxin 0.25 mg daily, Lisinopril 10 mg daily, Metoprolol 12.5 mg daily, Atorvastatin 40 mg daily, Furosemide 40 mg twice daily and Tylenol as needed for pain.

ALLERGIES: No known allergies

SOCIAL HISTORY: Mr. Fernandez is a pleasant 62-year-old gentleman who lived with his 55year-old wife in his home for the past 35 years, until she passed away last year. He is a retired veteran who served in the Army for 30 years. He has two sons who live out of state, and a grandson in the area. His religious preference is Catholic and he occasionally attends services at St. Andrew's.

Mr. Fernandez denies any history of tobacco use. Mr. Fernandez also states that he occasionally has a glass of beer with dinner and otherwise drinks alcohol socially on rare occasion. He denies illegal drug use and occasionally takes OTC acetaminophen for arthritic pain.

REVIEW OF SYSTEMS:

GENERAL: Has had increased weakness and fatigue over past several months to the point where he can't complete his normal daily activities and has experienced several falls.

HEENT: Wears reading glasses and otherwise unremarkable. No complaints of headache change in vision, nose or ear problems, or sore throat.

Respiratory: Denies increased shortness of breath. Reports occasional cough of clear sputum.

Cardiovascular: Denies chest pain. Has chronic edema in both feet and legs for which he occasionally wears TED hose.

Peripheral Vascular: Denies claudication, leg cramps, parasthesias.

Gastrointestinal: No complaints of nausea, vomiting or diarrhea. No complaints of dysphagia, nausea, vomiting, or change in stool pattern, consistency, or color.

Genitourinal: No complaints of dysuria, hematuria. Does have difficulty starting stream with some dribbling. Generally has nocturia x 3.

Musculoskeletal: He complains of daily joint pain which worsens before it rains. This pain is usually relieved with Tylenol. He complains of no other muscle aches or pains. He complains of increasing fatigue and weakness that has prevented him from gardening over the past few months, and has fallen five times at home without major injury. He states when he falls "my legs just go out from under me."

Neurological: Denies numbness and tingling in extremities.

PHYSICAL EXAM:

Vital signs: Blood Pressure: 158/100, Pulse: 58, Respirations: 18, Temperature: 37.5 degrees Celsius, O2 sat 95%

height= 175 cm, weight= 86.4 kg Pain Scale 2/10

General Appearance: 62-year-old male who appears stated age although dehydrated and slightly disheveled. Maintains eye contact and interacts appropriately. Is alert and oriented x 3 and cooperative but fatigued.

HEENT: Pupils equally round, 4mm, reactive to light and accommodation, sclera and conjunctiva normal. Fundoscopic examination reveals normal vessels without hemorrhage.

Tympanic membranes and external auditory canals within normal limits.

Oral pharynx without erythema or exudates. Tongue and gums are within normal limits.

Neck is easily movable without resistance. No abnormal adenopathy in the cervical or supraclavicular areas. Trachea is midline and thyroid gland is without masses. No carotid bruit auscultated.

Integument: Skin is warm and dry with no cyanosis present.

Respiratory/Chest: Lungs clear bilaterally. No accessory muscle use. Minimal effort. No cyanosis or clubbing.

Cardiovascular: Normal S1S2 without extra sounds. PMI is in the 6th inter-costal space at the lateral line.

Vascular/extremities: Posterior tibial pulses $- L 1/4 / R \frac{1}{4}$ Capillary refill less than three seconds. Extremities warm and pink. Lower extremity pedal edema 1+ bilaterally.

Gastrointestinal/abdomen: The abdomen is symmetrical without distention; bowel sounds are normal in quality and intensity in all areas. No masses or splenomegaly are noted.

Genitourinary: No CVA tenderness.

Neurological: Cranial nerves II – XII are within normal limits. Motor ability, sensation and reflexes of the upper and lower extremities are within normal limits. Gait is wide based but otherwise steady.

ASSESSMENT/PLAN:

- 1. Admit to Virtual Medical Center
- 2. IV Fluid bolus 0.9% NS with 20 mEq K+ at 500 ml/hour, followed by maintenance rate of 150 ml/hr
- 3. Continuous Cardiac Monitoring
- 4. 12 lead STAT EKG PRN for new onset chest pain
- 5. Administer O2 via nasal cannula PRN to maintain pulse oximetry at 95% or greater (notify health care provider if cannot maintain O2 sat >90%)
- 6. Cardiac diet: 2 g sodium diet, low fat, low cholesterol
- 7. Weight on admission and daily weights
- 8. Aspirin enteric coated 81 mg PO daily
- 9. Furosemide 40 mg PO every 12 hours
- 10. Metoprolol 12.5 mg PO daily
- 11. Lisinopril 10 mg PO daily
- 12. Atorvastatin 40 mg PO daily
- 13. Acetaminophen 500 mg PO PRN every 4 hours for pain or fever
- 14. CBC with differential, Chem 7, Magnesium, BNP, Liver Enzymes, TSH, Troponin

- 15. Echocardiogram
- 16. Physical therapy consult
- 17. Consult with social worker regarding Advanced Directives
- 18. Consult for cardiac rehabilitation on discharge
- 19. On discharge, provide and document heart failure instructions: diet and fluid restrictions, activity, medications, daily weight recording, worsening symptoms, and follow-up appointment after discharge

Electronically signed by: Dr. M. Cordoba, M.D.

APPENDIX B: PATIENT EDUCATION HANDOUT ON HEART FAILURE What Can I Do to Manage Heart Failure?

Although heart failure cannot be cured, it can be managed well. Your treatment plan may include medicines, surgery, implantable medical devices, or a combination of these approaches. There are also a lot of things you can do to help improve your condition. Together with proper medical care and careful monitoring, good self-care can help you feel better, stay out of the hospital, and live a longer life.

To manage your heart failure, it is best if you do the following:

Take your medicines regularly as prescribed by your

doctor. When the medicines that your doctor has prescribed are taken regularly and at the correct doses, they can make you feel better, reduce hospitalizations, and help you live longer. Experts in heart failure call many of these medicines "lifesaving." Since your



medication is very important, when traveling, keep your medication in your carry-on luggage and bring it with you on the plane. It is helpful to keep your medicine organized, and remember to refill your prescriptions before you travel so that they do not run out.



Weigh yourself every day and write it down.

Daily changes in weight are usually the result of water weight. By weighing yourself every day at the same time, you can help monitor whether your body is retaining fluid due to heart failure. Even though you may feel the same, a gain of just 3 to 4 pounds over a few days is a sign of worsening congestion that must be treated. If treated, your heart and lungs can function more easily and you may feel more comfortable. If left untreated, it may become more serious and require hospitalization.

Follow a low-sodium (low-salt) diet.

Heart failure can cause your body to retain sodium and result in fluid buildup. The extra fluid makes your heart work harder and your symptoms get worse.

A low-sodium diet generally means that you eat no more than about 2,000 milligrams (mg) of sodium per day. That amount is less than 1 teaspoon of salt from all sources, including the salt that is already in your food.

To reduce the sodium in your diet, stop adding additional salt to your food. Avoid processed foods —especially canned, boxed, or bagged foods — and eat more fresh vegetables and fruit. Be sure to review the nutritional information labels on all packaged foods for sodium content, and decrease the total amount of salt you eat per day. Pay close attention when eating at restaurants. Many restaurants will tell you nutritional information of foods if you ask. They will hold salt when cooking if you ask and will serve salad dressing and sauces/gravies on the side. Also, pay attention to certain foods that contain a large amount of water, such as head lettuce or watermelon. Although following a low- sodium diet might be a challenge, by following the diet recommended by your doctor or nurse you will gain better control of your condition.





Get regular physical activity.

Heart failure can make you feel tired. One of the ways to feel better is to keep physically active through a regular exercise program. In general, start slowly and increase your exercise gradually. Talk to your doctor about an exercise program that is best for you. Exercise can be a highly valuable plan to improve your condition.

Quit smoking.

Quitting smoking is one of the best things you can do for your heart and overall health. Smoking damages your blood vessels, increases your blood pressure, and causes lung disease in addition to other problems. Quitting smoking is strongly recommended for all people with heart disease, including heart failure. Talk to your doctor or nurse about new methods for helping people quit smoking.



Stay connected socially.



Your family and friends can help. Don't keep your condition a secret. Let your family and friends support you and help you stay with your treatment plan. Having an active social life can also help keep your mind off your problems and give you a more positive outlook on life. Participating in activities that you enjoy reminds you of why you want to take good care of yourself and stay healthy. Plan some fun activities that will reduce stress and give you energy.

Monitor your symptoms daily and learn when to call your

doctor. *You* know your heart failure symptoms best. Write down when you notice your symptoms are getting better or worse, or when you develop new symptoms. This information can help alert you as to when you should call your doctor and can also help your doctor make changes to your treatment.



Feel free to ask your doctor and nurse any questions you might have about your treatment plan.

Adapted by the SCA Prevention Medical Advisory Team from the IMPROVE HF registry toolkit.

This material is intended to be educational. It is not intended to replace the information provided to you by your healthcare providers and may not be directly applicable for your individual clinical circumstance.

Please refer to the manufacturers' prescribing information and/or instructions for use for the indications, contraindications, warnings, and precautions associated with the medications and devices referenced in these materials.

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