

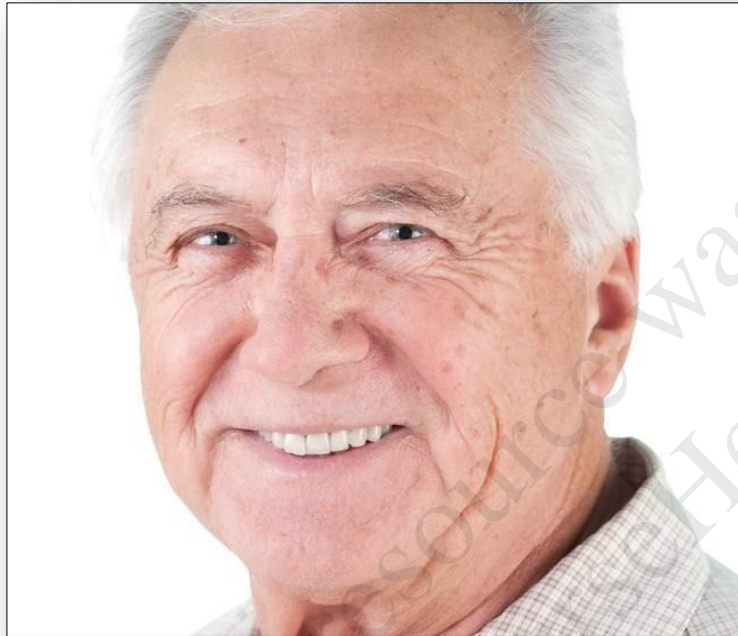
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## Circulation (Perfusion)

# Heart Failure Clinical Reasoning Case Study

### Case Study 2

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**Carlos Boccerini, 68 years old**

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### Overview

This case study is a common presentation seen by the nurse in clinical practice:

Acute Coronary Syndrome

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### Concepts

Gas Exchange  
Infection  
Acid-Base Balance  
Thermoregulation  
Clinical Judgment  
Pain

TB/2018

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# Acute Coronary Syndrome

## I. Data Collection

### History of Present Problem:

Carlos Boccerini is a 68-year-old male who has a 5-year history of systolic heart failure secondary to ischemic cardiomyopathy with a current ejection fraction (EF) of only 15%. He presents to the emergency department (ED) for shortness of breath (SOB) the past 3 days. His shortness of breath has progressed from SOB with activity to becoming SOB at rest. The last two nights he had to sleep in his recliner chair to rest comfortably with his head partially elevated. He is able to speak only a partial sentence and then has to take a breath when talking to the nurse. He has noted increased swelling in his lower legs and has gained 6 pounds in the last 3 days. He is being transferred from the ED to the cardiac step-down where you are assigned to care for him.

### Personal/Social History:

Carlos has been married for 45 years and has 4 children. He is a retired baker who had to retire early due to medical problems secondary to his progressive heart failure. The family celebrated two birthdays this week and Jim made it to both parties. His wife does most of the cooking at home and follows his need for sodium restrictions, but during the celebrations, Carlos made his own dietary choices.

## DATA

### Radiology Reports:

Results:	Clinical Significance:
Bilateral diffuse pulmonary infiltrates consistent with pulmonary edema	Results indicate fluid like substance within the lungs which correlates to the diagnosis of pulmonary edema with possible left sided heart failure

### EKG Strip



What is the ventricular rate? 100 bpm

Is the rhythm regular or irregular? Irregular

Identify this rhythm: atrial fibrillation

### Laboratory Values:

**References:** Pagana, K.D., & Pagana, T.J. (2014). Mosby's diagnostic and laboratory test reference (12ed.). New York: Mosby, Elsevier.

Basic Metabolic Panel (BMP):	Current:	High/Low/WNL?
Sodium (135-145 mEq/L)	133 low	CHF and fluid on his lungs
Potassium (3.5-5.0 mEq/L)	5.5 high	Heart ischemia / possible acute renal failure
Chloride (95-105 mEq/L)	98	normal
CO2 (Bicarb) (21-31 mmol/L)	22	Normal
Anion Gap (AG) (7-16 mEq/l)	10	Normal
Glucose (70-110 mg/dL)	122 high	Renal failure
Calcium (8.4-10.2 mg/dL)	8.8	Normal
BUN (7 - 25 mg/dl)	48 high	CHF
Creatinine (0.6-1.2 mg/dL)	2.7 high	CHF
Magnesium (1.6-2.0 mEq/L)	1.9	

Cardiac Labs:	Current:	High/Low/WNL?	Most Recent:
Troponin (<0.4 ng/mL)	0.01	Normal	0.00
CPK total (26-140 U/l )	40	Normal	38
CPK-MB (<5%)	0	Normal	0
BNP (B-natriuretic Peptide) (<100 ng/L)	1855 high	Cardiomyopathy	155

What data is important & RELEVANT?

RELEVANT Data from Present Problem:	Clinical Significance:
1. EF of 15%  2. sleeping in chair to rest comfortably  3. edema in lower legs and 6lb weight gain in 3 days  4. SOB for last 3 days and now with activity	<i>1. End- stage of heart failure</i>  <i>2. left sided heart failure exacerbation</i>  <i>3. right sided heart failure</i>  <i>4. Pulmonary edema is present and becoming worst</i>

**What is the RELATIONSHIP of your patient's past medical history (PMH) and current meds?**  
(Match medication to condition)

PMH:	Home Meds:	Pharm. Classification:	Expected Therapeutic Outcome of Medication
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Atrial fibrillation – 6, 7 Heart failure (systolic) secondary to ischemic cardiomyopathy – 24, 4, 5 MI with CAB x3 in 2008 – 1, 7 Hyperlipidemia - 3 Chronic renal insufficiency 5, 6 ICD placed 2008- 1	1. ASA 81 mg daily 2. Carvedilol (Coreg) 3.25 mg daily 3. Ezetimide (Zetia) 10 mg daily 4. Hydralazine (Apresoline) 25 mg 4x daily 5. Torsemide (Demedex) 20 mg bid 6. KCL 20 meq daily 7. Warfarin (Coumadin) 5 mg daily	1. Myocardial infarction with CAB 2. Heart failure 3. hyperlipidemia 4. heart failure 5. chronic renal insufficiency 6. atrial fibrillation 7. MI w/CAB	1. thrombus prevention 2. Decreased HR & BP 3. Decreased cholesterol in vessels to increase perfusion and decrease vascular resistance 4. Increased CO and SV 5. Decreased fluid retention 6. K regulation 7. Thrombus formation prevention
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## Patient Care Begins:

Current VS:
<b>T:</b> 98.6 (oral)
<b>P:</b> 82 (irregular)
<b>R:</b> 26 (regular)
<b>BP:</b> 162/54
<b>O2 sat:</b> 90% (6 liters n/c)

Current Assessment:	
GENERAL APPEARANCE:	Appears anxious, restless
RESP:	Breath sounds have coarse crackles scattered throughout both lung fields, labored respiratory effort, patient sitting upright and utters 4 words and then takes a breath
CARDIAC:	Rhythm: atrial fibrillation, pale, cool to the touch, pulses palpable throughout, 3+ pitting edema lower extremities from knees down bilaterally, heart sounds irregular with no abnormal beats
NEURO:	Alert & oriented to person, place, time, and situation (x4)
GI:	Abdomen soft/nontender, bowel sounds audible per auscultation in all four quadrants
GU:	Voiding without difficulty, urine clear/yellow
SKIN:	Skin integrity intact

**What data is RELEVANT that must be recognized as clinically significant to the nurse?**

RELEVANT Data:	Clinical Significance: (Explain why it is significant)
Pulse: 82	Atrial fibrillation exacerbation– increased cardiac output
RR: 26	Pulmonary edema indicates he is in distress
BP: 162/54	Patient is anxious and Increasing afterload – heart is overworking to maintain output
O2 stat: 90%	Inadequate perfusion
Coarse Crackles	Patient skin is diaphoretic due to tachycardia and heart rate. Coarse crackles- indicate fluid 3+ pitting edema- now right sided heart failure

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### III. Clinical Reasoning Begins...

1. *What is the primary problem that your patient is most likely presenting with? Based on what findings? (data, history, labs...)*

The primary problem is left sided heart failure that has progressed to right sided heart failure.

Findings: coarse crackles, SOB, peripheral edema, & 15% ejection fraction. Elevated BUN and Creatinine indicate poor renal perfusion

2. *List one priority nursing diagnosis and Concept*

Impaired gas exchange r/t excessive fluid in interstitial spaces of the lungs

13. *What interventions will you initiate based on this priority? (3)*

Nursing Interventions:	Rationale:	Expected Outcome:
<p>1. Elevate the head of the bed and position the client upright</p> <p>2. Administer medications as indicated by the physician (bronchodilators, antitussives/mucolytics, antibiotics)</p> <p>3. Provide additional supplemental oxygen at concentration indicated by patient situation</p> <p>References: <a href="http://online.statref.com.ezproxy.uthsc.edu/">http://online.statref.com.ezproxy.uthsc.edu/</a></p>	<p>1. Elevation or upright position facilitates respiratory function by gravity</p> <p>2. Pharmacological agents generally help prevent and control symptoms, reduce frequency and severity of exacerbations, and improve tolerance.</p> <p>3. Additional o2 will help improve oxygenation</p>	<p>1. Improved oxygenation</p> <p>2. Control of symptoms/relief</p> <p>3. O2 to be greater than 92%</p>

4. *What body system(s) will you most thoroughly assess based on the primary/priority concern?*

Mental status – LOC, confusion, irritability, restlessness

Integumentary Skin- abnormal skin color, diaphoresis

CBC- Co2 levels

VS: RR- breathing pattern (Rate, rhythm, depth), nasal flaring , HR-tachycardia/dysrhythmias

Cardiac System

Renal system

5. *What is the worst possible/most likely complication(s) to anticipate based on the primary problem?*

*The patient can possibly anticipate Renal Failure as a result of his primary problem of CHF.*

*The most likely complication would be a heart attack or stroke*

**6. What nursing assessment(s) will you need to initiate to identify this complication if it develops?**

*Input/Output: Urine assessment- specific gravity, pH, appearance (blood, color), odor, and signs of infection*

*CBC: GFR, BUN, creatinine*

*Assess skin for signs of dehydration, pale skin, edema and elasticity*

*Assess abdomen for distention & changes in frequency*

*Assess lung sounds: rate, depth, and respiration*

*Assess pain level*

**7. What nursing interventions will you initiate if this complication develops?**

*The nurse will monitor vital signs, particularly BP & P changes from baseline q4h*

*The nurse will auscultate breath sounds for the presence of crackles and congestion*

*The nurse will monitor I/O and weight daily*

*The nurse will monitor patients skin for signs of edema, ulceration & jugular distention*

*The nurse will monitor patients loc for personality changes and confusion*

*The nurse will administer medications as prescribed (diuretics, bulk forming laxatives)*

*The nurse will teach the patient about fluid restrictions, low-sodium diet, and adequate caloric intake.*

*The nurse will elevate the head of the bed 30-45 degrees*

*The nurse will observe for chest pain & discomfort*

**Reference:** Ackley, B. J., Ladwig, G. B., & Makic, M. B. (2017). Nursing Diagnosis Handbook: An Evidence-Based Guide to Planning Care. St. Louis: Elsevier.

Case Study Rubric (2 Cases)	
Identifies Relevant Data (2x5)	10
Correctly Matches Patient History to Current Medications (2x5)	10
Recognizes Clinically Significant Data (2x5)	10
Identifies Primary Problems and Relating Findings (2x5)	10
Identifies One Primary Nursing Diagnosis and Concept (2x5)	10
Identify nursing interventions to manage nursing diagnosis (problem) (2x5)	10
Identifies priority body system to assess related to priority concern (2x5)	10
Identifies possible complications related to primary problem (2x5)	10
Identifies nursing assessment finding that will identify complication	10
Identifies interventions to initiate if complication(s) occurs (2x5)	10
Cite reference source for evidence based interventions (2x5)	-5
Late Submissions	-5
Total Points	/100
Comments	

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**Group E**  
**Date 3/6/2018**