N441 Care Plan

Lakeview College of Nursing

Zachariah Bovard

Demographics (3 points)

Date of Admission 1/18/22	**Client Initials** B.D.	**Age** 72	**Gender** Female
Race/Ethnicity White	**Occupation** Retired	**Marital Status** Divorced	**Allergies** Acyclovir, augmentin, clindamycin, codeine, vancomycin
Code Status Full Code	**Height** 158.75 cm	**Weight** 158.5 Kg	

Medical History (5 Points)

Past Medical History: Acute respiratory failure with hypoxia and hypercapnia, shock (unspecified), Covid-19, Covid-19 associated pneumonia, chronic kidney disease (Per ED physician's history), hyperkalemia, rhabdomyolysis, acute blood loss anemia, acute posthemorrhagic anemia, shortness of breath, chronic hypercapnic respiratory failure, obesity, wheeze, acute kidney injury, chronic obstructive pulmonary disease, hypertension, hyperlipidemia, depression, gout, diastolic heart failure, dyslipidemia, anemia, anxiety, urinary tract infection, presumed bacterial respiratory co-infection.

Past Surgical History: Previous tracheostomy (date unknown)**,** Cholecystectomy (date unknown; procedure evident on CT findings).

Family History: Mother: Unspecified heart disease; Sister: Breast cancer. The patient's daughter is unaware of any other family history.

Social History (tobacco/alcohol/drugs including frequency, quantity and duration of use): Per her daughter, B.D. smoked approximately one pack of cigarettes a day for 40 years before cessation in 2005; this is a 40 pack-year history. She very rarely consumed alcohol, and to the best of the daughter's knowledge she never consumed any illicit drugs including marijuana.

Assistive Devices: While at the nursing home, the patient used a wheeled walker for ambulation.

Living Situation: B.D. is a resident of a skilled nursing facility.

Education Level: The student was unable to determine B.D.'s education level due to the patient's intubation and level of consciousness. Furthermore, this information is unavailable in the patient's chart. While the patient's daughter was present near the end of the student's clinical experience, his interview with her was limited due to her increasing emotional distress with questioning regarding her mother's history. Consequently, we did not discuss B.D.'s education level. However, during the student's review of B.D.'s progress notes, he made several observations. First, at the emergency department, B.D. exhibited familiarity with her course of treatment to that point including the volume of oxygen she received prior to symptomatic exacerbation at the nursing home. Secondly, the content of several notes indicated that the client could meaningfully discuss her needs and grasped the seriousness of her condition, deterioration, and prognosis. Accordingly, this student does not suspect that her education level represents a barrier to learning.

Admission Assessment

Chief Complaint (2 points): Shortness of breath

History of Present Illness – OLD CARTS (10 points):

At the time of our encounter, B.D. is intubated and lethargic while receiving a continuous IV infusion of fentanyl for pain management. Her communicative ability, at present, consists of nodding to indicate affirmative and negative responses. Consequently, the student was forced to rely on secondary sources. Specific resources included provider notes from the emergency department, documentation from the nursing home, and information gleaned from the student's interview with the patient's daughter.

<u>Onset</u>

Per the patient's daughter, B.D. suffers from chronic shortness of breath as a complication of her chronic obstructive pulmonary disease; her daughter states that B.D. has required oxygen by nasal cannula for about one year. Her daughter estimates that B.D.'s exacerbation of dyspnea started approximately 24 hours before she presented to the emergency department.

Location

The client's complaint, in this case, does not lend itself well to simple localization. While the student's preference would be to substantively discuss her experience of being short of breath with B.D., her condition renders her unable to do so. However, the student's review of the chart reveals diagnostic work that supports a pulmonary etiology for her shortness of breath. Specifically, the results of her chest x-ray and CT angiography at the emergency department indicated the presence of bilateral patchy infiltrates in her lungs.

Duration

Per the client's daughter, following the onset of the client's exacerbation of dyspnea, her condition progressively worsened. Furthermore, a review of B.D.'s progress notes reveal that shortness of breath associated with hypoxia has been a recurring problem for her during her hospital stay. As of our encounter, B.D. has been at Sarah Bush Lincoln for 21 days.

Characteristics

As discussed above, due to B.D.'s present condition it was not possible for the student to explore her experience in depth. The student was able to glean from his review of B.D.'s chart that her shortness of breath was accompanied by chest pain, fatigue, and fever at the time of her presentation to the emergency department.

Associated Factors

A review of B.D.'s chart supports a correlative and reasonably surmised relationship between hypoxia and her shortness of breath. Because hypoxia is an objective measurement that follows the progression of her primary diagnosis, the student feels that it is best considered an associated factor. Furthermore, a progress note from one of her attending physicians revealed that B.D. expressed fear and anxiety leading up to her return to the CCU from stepdown. Because the charting seems to indicate these symptoms occurred after her dyspnea exacerbation, the student believes they are also associated factors rather than aggravating. The student was unable to ask the client directly about her perceived associated factors.

Aggravating Factors and Relieving Factors

Again, due to B.D.'s lethargy and non-verbal status, the student is unable to discuss aggravating and relieving factors with her directly. However, a review of nursing notes from her stay revealed that the client reported symptomatic relief while sitting up in her recliner. From that observation, the student infers that laying flat is an aggravating factor for her.

Treatment and Timing

Other than receiving an increase in supplemental O2 at the nursing home, B.D.'s transfer to the hospital was the first time she received treatment. Upon her arrival to the ED, the client was transitioned to an oxymizer at 35% to maintain oxygen saturations greater than 90%. She received an initial course of treatment for Covid-19, which the ED physician presumed caused her respiratory failure. Specifically, she received orders for vitamin C 500 mg PO daily, vitamin D 1000u PO daily, and zinc 220 mg PO daily. Furthermore, she began treatment with intravenous dexamethasone and remdesivir per protocol.

Severity

Although B.D. is unable to describe her perception of symptomatic severity, the available progress notes indicate that her respiratory and overall status appear to have deteriorated significantly since admission. B.D. has experienced a protracted hospitalization with multiple severe complications. These include urinary tract infection, posthemmorhagic anemia, suspected septic shock, suspected bacterial respiratory co-infection, acute kidney injury, and rhabdomyolysis. Ultimately, B.D. came to require intubation and mechanical ventilation to maintain SaO2 levels greater than 90%.

Primary Diagnosis

Primary Diagnosis on Admission (2 points): Acute Respiratory hypercapnic and hypoxemic Failure.

Secondary Diagnosis (if applicable): Covid-19 pneumonia

Pathophysiology of the Disease, APA format (20 points):

Description of Condition

Fundamentally, acute respiratory failure (ARF) describes inadequate ventilation, oxygenation, or both. (Hinkle & Cheever, 2018). The condition is defined by its diagnostic arterial blood gas values. One is said to be in acute respiratory failure if they have a PaO2 of less than 60 mm Hg, an increase of CO2 higher than 50 mm Hg, and an accompanying pH of less than 7.35 (Hinkle & Cheever, 2018).

Manifestations

According to Hinkle & Cheever (2018), the early presentation of acute respiratory failure arise from low oxygenation.

Pathophysiology References (2) (APA):

Hinkle, J. L., & Cheever, K. H. (2018). *Brunner & Suddarth's textbook of medical-surgical nursing* (14th ed.). Wolters Kluwer.

Holman, H. C., Williams, D., Sommer, S., Johnson, J., Ball, B. S., Wheless, L., Leehy, P., & Lemon, T. (2019). *RN adult medical surgical nursing review module* (11th ed.). Assessment Technologies Institute, LLC.

Laboratory Data (15 points)

CBC Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason for Abnormal Value
RBC	3.8-5.41 x10^6/mcL	3.24 x 10^6/mcL On 1/18/22	2.72 x 10^6/mcL On 2/8/22	Pagana et al. (2021) assert that a decreased red blood cell count is associated with anemia, renal pathology, blood loss, and chronic illness. When B.D. presented to the emergency department on 1/18/22, she had a history of anemia and chronic kidney disease. During her stay at Sarah Bush, B.D. developed acute kidney injury and

				posthemorrhagic anemia. These diagnoses provide a plausible etiology for her further decrease in red blood cell count (Pagana et al., 2021).
Hgb	11.3-15.2 g/dL	9.0 g/dL On 1/18/22	7.7 g/dL On 2/8/22	Decreased hemoglobin is associated with anemia, kidney disease, and blood loss (Pagana et al., 2021). The patient presented to the emergency department on 1/18/22 with a history of anemia and chronic kidney disease. Her subsequent diagnoses of acute kidney injury and posthemorrhagic anemia provide a probable rationale for the continued decline of hemoglobin (Pagana et al., 2021).
Hct	33.2-45.3%	27.7% On 1/18/22	23.9% On 2/8/22	Hematocrit is decreased in anemia, hemorrhage, and renal disease (Pagana et al., 2021). B.D. presented to the emergency department with a history of anemia and chronic kidney disease. During her stay at Sarah Bush, B.D. developed acute kidney injury and posthemorrhagic anemia. The literature supports these diagnoses as causes for B.D.'s further decrease in hematocrit (Pagana et al., 2021).
Platelets	149-393 K/mcL	292 k/mcL On 1/18/22	550 K/mcL On 2/8/22	According to Pagana et al. (2021), thrombocytosis can occur secondary to acute infection, chronic infections, or inflammatory processes.

				In addition to B.D.'s Covid-19 diagnosis on admission, she developed a urinary tract infection. The literature supports urinary tract infection as a possible cause of thrombocytosis (Zayed et al., 2016, as cited in Akya et al., 2019).
WBC	4.0-11.7 K/mcl	7.3 k/mcl On 1/18/22	12.6 k/mcl On 2/8/22	Elevations in white blood cell count are associated with infection (Pagana et al., 2021). D.B. was admitted with a diagnosis of Covid-19 and, during her stay, developed a urinary tract infection.
Neutrophils (Absolute)	2.4-8.4x10^3/ mcL	5.7 x10^3/mcL On 1/18/22	10.6 x10^3/mcL On 2/8/22	According to Pagana et al. (2021), elevated neutrophils can occur due to physical or emotional stress, infection, and metabolic disorders such as gout. B.D. has a history of gout, developed a urinary tract infection during her stay, and has experienced significant physical and emotional stress because of her protracted illness. Furthermore, her sputum culture results on 2/8/22 revealed the presence of *P. aeruginosa* and *Staphylococcus spp*. Her provider indicates in his notes that he presumes this to be a coinfection with Covid-19 pneumonia.

Lymphocytes (Absolute)	0.8-3.7x10^3/mcL	1.1x10^3/mcL On 1/18/22	0.8x10^3/mcL On 2/8/22	N/A -
Monocytes (Auto)	4.4-12%	7.2% On 1/18/22	7.9% On 2/8/22	N/A
Eosinophils (Auto)	0.0-6.3%	0.1% On 1/18/22	1.3% On 1/18/22.	N/A
Bands	0-6%	1.0% On 2/6/22 (first instance this lab was performed).	1.0% On 2/7/22	N/A

Chemistry Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason For Abnormal
Na-	136-145 mmol/L	138 mmol/L On 1/18/22	139 mmol/L On 2/8/22	N/A
K+	3.5-5.1 mmol/L	3.6 mmol/L On 1/18/22	4.8 mmol/L On 2/8/22	N/A. However, the student should note that values collected on admission and the date of encounter do not capture the client's hyperkalemia believed to be associated with acute kidney injury that she suffered during her stay. According to Pagana et al. (2021), hyperkalemia is associated with acute kidney injury.

Cl-	98-107 mmol/L	90 mmol/L On 1/18/22	98 mmol/L On 2/8/22	Hypochloremia is associated with congestive heart failure and diuretic therapy (Pagana et al., 2021). On admission, B.D.'s history included diastolic heart failure. Furthermore, her home medication list includes torsemide.
CO2	21-31 mmol/L	41 mmol/L On 1/18/22	33 mmol/L On 2/8/22	Pagana et al. (2021) assert that CO2 levels can be decreased in renal failure. On admission, the ED physician notes a history of chronic kidney disease.
Glucose	74-109 mg/ dL	153 mg/dL On 1/18/22	132 mg/dL On 2/8/22	Hyperglycemia can result from acute stress response, chronic renal failure, and diuretic therapy (Pagana et al., 2021). B.D. was admitted with and continues to suffer from acute respiratory failure, which provides a potential cause for an acute stress response. Furthermore, she had a history of chronic kidney disease and took torsemide daily as indicated on her home medication list.
BUN	7-25 mg/dL	39 mg/dL On 1/18/22	86 mg/dL On 2/8/22	According to Pagana et al. (2021), increased BUN is observed in congestive heart failure and renal failure. B.D. has a history of chronic kidney disease and diastolic heart failure. Furthermore, she developed an acute kidney injury during her stay.
Creatinine	0.60-1.20 mg/dL	1.29 mg/dL	1.70 mg/dL	Increased creatinine levels are associated with congestive

		On 1/18/22	On 2/8/22	heart failure, renal pathologies, and rhabdomyolysis (Pagana et al., 2021). B.D. had a history of diastolic heart failure and chronic kidney disease on admission. Furthermore, she developed an acute kidney injury and rhabdomyolysis during the course of her stay at Sarah Bush.
Albumin	3.5-5.2 g/dL	3.2 g/dL On 1/18/22	2.6 g/dL On 2/2/22 (last date performed)	Low serum albumin is a frequent finding in elderly patients with heart failure (Pasini et al., 2003, as cited in Ancion et al., 2017). On admission, B.D. had a history of diastolic heart failure. Furthermore, Pagana et al. (2021) assert albumin can be decreased during acute infection. B.D. presented to the emergency department with Covid-19. Over the course of her stay, B.D. developed a urinary tract infection.
Calcium	8.6-10.3 mg/dL	8.1 mg/dL On 1/18/22	8.4 mg/dL On 2/8/22	Pagana et al. (2021) assert that hypocalcemia can occur secondary to renal failure. B.D. had a history of chronic kidney disease on admission and developed an acute kidney injury during her stay.
Mag	1.6-2.4 mg/dL	3.0 mg/dL On 2/2/22	N/A Magnesium level only taken on 2/2/22 during this stay.	Magnesium can be decreased in chronic renal disease (Pagana et al., 2021). B.D. had a history of chronic kidney disease on admission.
Phosphate	3.4-4.5 mg/dL	N/A	N/A	N/A

Bilirubin	0.3-1.0 mg/dL	0.3 mg/dL On 1/18	0.3 mg/dL On 2/2/22	N/A
Alk Phos	34-104 unit/L	89 unit/L On 1/18	111 unit/L On 2/2/22	Elevated alkaline phosphatase levels are associated with allopurinol use (Pagana, 2021). B.D. takes allopurinol historically and as an inpatient for her gout.
AST	13-39 unit/L	29 unit/L On 1/18	17 unit/L On 2/2/22	N/A
ALT	7-52 unit/L	27 unit/L On 1/18/22	14 unit/L On 2/2/22	N/A
Amylase	30-220 units/L	N/A	N/A	N/A
Lipase	0-160 units/L	N/A	N/A	N/A
Lactic Acid	Venous: 5-20 mg/dL Arterial: 3-7 mg/dL	N/A	N/A	N/A
Troponin	0.000-0.030 ng/mL	0.013 ng/mL On 1/18/22	N/A	N/A
CK-MB	<5 Intl Unit/L	N/A	N/A	N/A
Total CK	CK 30-223 Intl Unit/L	1178 Unit/L On 2/5/22	934 Unit/L On 2/6/22	Pagana et al. (2021) state that total CK elevation can be observed in pathology involving skeletal muscle. During her stay, B.D. developed rhabdomyolysis, which she was diagnosed with on 2/5/22.

Other Tests Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
INR	0.8-1.1	N/A	N/A	N/A
PT	11-12.5 seconds	N/A	N/A	N/A
PTT	60-70 seconds	N/A	N/A	N/A
D-Dimer	0.00-0.62 mcg/mL	0.78 mcg/mL On 1/18/22	0.56 on 1/24	According to (Wood & Miller, 2021), elevated D-Dimer is a typical finding in patients with Covid-19. B.D. was admitted to the hospital with a diagnosis of Covid-19.
BNP	0-100 pg/mL	49 On 2/1/22	N/A	N/A
HDL	>55 mg/dL	N/A	N/A	N/A
LDL	<130 mg/dL	N/A	N/A	N/A
Cholesterol	<200 mg/dL	N/A	N/A	N/A
Triglycerides	0-149 mg/dL	377 on (2/2/22)	159 (on 2/8)	According to Pagana et al. (2021), triglyceride elevation is observed in hyperlipidemia. B.D. had a history of hyperlipidemia on admission to Sarah Bush Lincoln.
Hgb A1c	4-5.9%	N/A	N/A	N/A
TSH	2-10 microunits/mL	N/A	N/A	N/A

Urinalysis Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
Color & Clarity	Yellow, clear	Yellow, clear	Yellow, cloudy	Cloudy urine is indicative of the presence of pus, red blood cells, or

		On 1/21/22	On 2/5/22	bacteria (Pagana et al., 2021). B.D.'s urine culture collected on 1/21/22 ultimately revealed infection with *Klebsiella pnuemoniae*. She was subsequently diagnosed with a urinary tract infection.
pH	5.0-8.0	5.0 On 1/21/22	5.5 On 2/5/22	N/A
Specific Gravity	1.005-1.034	1.013 On 1/21/22	1.015 On 2/5/22	N/A
Glucose	"Normal/Low Normal"	"Normal" On 1/21/22	"Normal" On 2/5/22	N/A
Protein	"Normal/Low Negative"	"Negative" On 1/21/22	**1+** On 2/5/22	Proteinuria is considered indicative of kidney disease (Pagana et al., 2021). B.D.'s history includes chronic kidney disease. During her stay, B.D. developed an acute kidney injury.
Ketones	"Normal/Low/Negative"	"Negative" On 1/21/22	"Negative" On 2/5/22	N/A
WBC	< or = 5/HPF	4 On 1/21/22	On 2/5/22	N/A
RBC	0-3 /HPF	14 On 2/2/22	2 On 2/5/22	Hematuria is considered a key indicator of renal disease and inflammation (Moreno et al., 2019).

				During her stay at Sarah Bush, B.D. developed an acute kidney injury.
Leukoesterase	"Normal/Low/Negative"	1+ On 1/21/22	"Negative" On 2/5/22	According to Pagana et al. (2021), elevated leukoesterase in the urine is indicative of a urinary tract infection. B.D.'s urine culture revealed infection with *Klebsiella pnuemoniae*. She was subsequently diagnosed with a urinary tract infection.

Arterial Blood Gas Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
pH	7.35-7.45	7.43 On 1/20/22	7.55 On 2/6/22	The initial finding is within normal limits. However, given that the classic presentation of acute respiratory failure includes an acidotic pH, the student felt it represented an anomaly (Holman et al., 2019). His literature review revealed observations that Covid-

				19 patients in respiratory acidosis can exhibit profound metabolic alkalosis (Etchison et al., 2021). B.D. was admitted to the hospital with a diagnosis of Covid-19. Moreover, B.D. has a history of chronic obstructive pulmonary disease (COPD). Among patients with chronic respiratory acidosis, which is anticipated in COPD, we expect metabolic compensation (Holman et al., 2019; Tinawi, 2021; Pagana et al., 2021). Finally, Pagana et al. (2021) note that respiratory alkalosis can occur in heart failure and acute pulmonary disease. B.D. has a history of diastolic heart failure. The value taken on 2/6/22, which is alkalotic, can reflect hyperventilation while mechanically ventilated

				(Akoumianaki et al., 2018). On the date of our encounter, this student noted that B.D. had a respiratory rate of 28 breaths per minute.
PaO2	75-85 mm Hg	55.1 mm Hg On 1/20/22	143 mm Hg On 2/6/22	B.D.'s primary diagnosis on admission was acute respiratory failure. The diagnostic criteria for acute respiratory failure includes a PaO2 of less than 60 mm Hg (Holman et al., 2019). The elevated oxygen pressure on 2/6/22 reflects the patient's treatment. By that date, she had been intubated, placed on mechanical ventilation, and receiving supplemental FiO2. Pagana et al. (2021) noted that increased PO2 is associated with increased inspired O2.
PaCO2	35-45 mm Hg	63.9 on 1/20/22	37 2/6/22	B.D.'s primary diagnosis on admission was acute respiratory failure. The diagnostic criteria for acute respiratory failure includes a

				PaCO2 of greater than 50 mm Hg (Hinkle & Cheever, 2018).
HCO3	22-26 mmol/ L	39.1 mmol/ L On 1/20/22	33 mmol/ L On 2/6/22	As previously discussed in the explanation of her pH values, B.D. had several factors associated with elevated bicarbonate. These included acute Covid-19 infection, a history of chronic obstructive pulmonary disorder, and a diagnosis of heart failure (Etchison et al., 2021; Pagana et al., 2021). Concerning the client's elevated but down-trending HCO3 on 2/6/22, the student notes that PaCO2 had significantly decreased by that date. Decreased PaCO2 increases pH, which reduces the need for metabolic compensation (Pagana et al., 2021).
SaO2	95-98%	85.2% On 1/20/22	100% On 2/6/22	B.D.'s admission diagnosis was respiratory failure. In respiratory

				failure, an SaO2 measurement of less than 90% is expected (Holman et al., 2019). Concerning the elevated value on 2/6/21, by that point B.D. was ventilated and receiving supplemental FiO2. Increased inspired O2 is associated with elevated SaO2 (Pagana et al., 2021).

Cultures Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
Urine Culture	Negative	Positive for *Klebsiella pneumoniae* On 1/21/22	Negative On 2/2/22	The presence of bacteria in a urine culture indicates a urinary tract infection. B.D. was diagnosed with a urinary tract infection based on the results of her urine culture. She was subsequently treated with gentamicin per pharmacy dosing.
Blood Culture	Negative	Negative On 1/20/22	Negative 2/5 On 2/5/22	N/A. However, the student should note that sepsis was a suspected etiology for B.D.'s shock diagnosis and that

				she did receive empiric treatment for sepsis.
Sputum Culture	Negative	• Collected on 2/1/22. • "Normal oral flora isolated at 1 day" on 2/2/22. • "Moderate diphtheroids, no sensitivity performed" on 2/3/22.	• Collected on 2/6/22 • "Rare pseudomonas aeruginosa, few staphylococcus species" on 2/8/22	The term diphtheroid refers to *Corynebacterium* species other than *Corynebacterium diphtheriae* (Yang et al., 2018). Although diphtheroids were present in B.D.'s sputum sample, no sensitivity was performed. According to Yang et al. (2018), these bacteria are frequently disregarded as contaminants. Concerning the results on 2/8/22, the provider presumes these organisms to represent a co-infection to B.D.'s Covid-19 pneumonia (Pagana et al., 2022).
Stool Culture	Negative	N/A	N/A	N/A

Lab Correlations Reference (1) (APA):

Akya, A., Rostami-Far, Z., Lorestani, R. C., Khazaei, S., Elahi, A., Rostamian, M., Andayeshgar, B., & Ghadiri, K. (2019). Platelet índices as useful indicators of urinary tract infection. Iranian Journal of Pediatric Hematology & Oncology, 9(3), 159-165. http://dx.doi.org/10.18502/ijpho.v9i3.1165

Ancion, A., Allepaerts, S., Oury, C., Gori, A., Pierard, L. A., Lancelotti, P. (2017). Serum albumin level and hospital mortality in acute non-ischemic heart failure. *ESC Heart Failure*, *4*(2), 138-145. https://doi.org/10.1002/ehf2.12128

Etchison, E. C., Khan, A., Schneider, J., & Gilbert, E. (2021). Severe respiratory acidosis and metabolic alkalosis in a patient with Covid-19 ARDS. *Chest*, *160*(4), Article 2154. https://doi.org/10.1016.j.chest.07.1903

Moreno, J. A., Sevillano, A., Gutierrez, E., Guerrero-Hue, M., Vazquez-Carballo, C., Yuste, C., Herencia, C., Garcia-Caballero, C., Praga, M., & Egido, J. (2019). Glomerular hematuria: Cause or consequence of renal inflammation? *International Journal of Molecular Sciences*, *20*(9), 2205. https://doi.org/10.3390/ijms20092205

Hinkle, J. L., & Cheever, K. H. (2018). *Brunner & Suddarth's textbook of medical-surgical nursing* (14th ed.). Wolters Kluwer.

Holman, H. C., Williams, D., Sommer, S., Johnson, J., Ball, B. S., Wheless, L., Leehy, P., & Lemon, T. (2019). *RN adult medical surgical nursing review module* (11th ed.). Assessment Technologies Institute, LLC.

Pagana, K. D., Pagana, T. J., & Pagana, T. N. (2021). *Mosby's diagnostic and laboratory test reference* (15th ed.). Elsevier.

Sarah Bush Lincoln (2022). *CK and CKMB with % index*. https://www.sarahbush.org/laboratory/lab-test/detail/324/

Sarah Bush Lincoln. (2022). Laboratory values. *Cerner PowerChart*. Cerner.

Tinawi, M. (2021). Respiratory acid-base disorders: Respiratory acidosis and respiratory alkalosis. *Archives of Clinical and Biomedical Research*, *5*(2), 158-168. https://doi.org/10.26502/acbr.50170157

Yang, K., Kruse, R. L., Lin, W. V., & Musher, D. M. (2018). Corynebacteria as a cause of pulmonary infection: A case series and literature review. *Pneumonia, 10,* Article 10. https://doi.org/10.1186/s41479-018-0054-5

Diagnostic Imaging

All Other Diagnostic Tests (5 points):

CT without contrast, chest (2/5/22)

Computerized tomography is an X-ray technique wherein a series of radiographs are taken to yield a cross-sectional image (Pagana et al., 2021). Crucially, the test permits the visualization of 3D structures and can be performed in real-time (Pagana et al., 2021). While the CT scan can be used to evaluate the same conditions as a regular X-ray, CT scans offer increased accuracy and detail (Pagana et al., 2021).

CT angiography with contrast, chest and pulmonary (1/18/22; 2/8/22)

As with the CT scan as described above, CT angiography permits detailed imaging of structures to facilitate evaluation (Pagana et al., 2021). However, in angiography, patients receive an injection of contrast dye that lets providers visualize arteries (Pagana et al., 2021). Consequently, the technique can be used to assess for problems like aneurysms, aortic dissection, or pulmonary embolism (Pagana et al., 2021).

X-ray, chest (1/18/22, 1/31/22, 2/7/22)

Radiographic imaging of the chest allows providers to evaluate the structure and visualize abnormalities of the pulmonary and cardiac systems (Pagana et al., 2021). In addition to the above function, the technique can serve other purposes. For example, identifying fractures or verifying the placement of medical devices (Pagana et al., 2021).

Echocardiogram (1/25/22)

Echocardiography refers to an ultrasonographic examination of the heart, which can be two or three dimensional, and allows the provider to visualize cardiac structure and function (Pagana et al., 2021). Because physicians can observe the heart and how blood flows through it using this technique, it is particularly useful for diagnosing valvular disorders and septal defects (Pagana et al., 2021). For the same reason, echocardiography is used during cardiac stress testing; providers can detect areas of ischemia and irregularities in how blood flows while the client is exertional (Pagana et al., 2021).

Electrocardiogram (1/18/22; continuous telemetry in CCU as of 2/8/22)

Electrocardiography generates a graph of waveforms that represent electrical activity throughout the cardiac cycle (Pagana et al., 2021). While the electrocardiogram's value in the diagnosis of arrhythmias is obvious, the technique can also alert providers to conditions that underlie conductive abnormalities (Pagana et al., 2021). For example, because elevation or depression of the ST segment suggests ischemia, electrocardiography is an important tool for ruling out myocardial infarction (Pagana et al., 2021).

Venous Duplex Ultrasound, upper and lower extremities (1/20/22; and 2/1/22)

Broadly, ultrasonography generates images by recording the echo of soundwaves emitted from a transducer against the structures being assessed (Pagana et al., 2021). The venous duplex ultrasound is used specifically to visualize blood flow (Pagana et al., 2021). Thus, the technique is useful in evaluating arterial aneurysms, occlusions, and spastic arterial conditions (Pagana et al., 2021).

Diagnostic Test Correlation (5 points):

CT without contrast, chest

(2/5/22)

B.D.'s provider ordered a CT without contrast of her chest on 2/5/22 to help him distinguish between competing diagnoses. At that point, the doctor was considering consolidation, atelectasis, pulmonary edema, and acute respiratory distress syndrome secondary to Covid-19 as potential causes for B.D.'s worsening condition. Furthermore, the test allowed him to assess the locations of B.D.'s endotracheal tube and internal jugular vein catheter. The interpreting physician could not exclude cardiogenic pulmonary edema. However, he did observe bilateral pleural effusions, cardiomegaly, and bilateral pulmonary opacities that he felt suggested infection or acute respiratory distress syndrome. No pneumothorax was noted. Other findings included atherosclerotic changes to the thoracic aorta, mediastinal adenopathy, and degenerative changes to the spine. He did not note evidence of pneumothorax. Per his report, the tip of B.D.'s endotracheal tube was in her midthoracic trachea and her internal jugular catheter was in place.

CT angiography with contrast, chest and pulmonary

1/18/22

At the emergency department, B.D.'s D-dimer was elevated. Furthermore, she complained of shortness of breath and tested positive for Covid-19. According to Holman et al. (2019), elevations in D-dimer and shortness of breath are associated with pulmonary embolism. Furthermore, pulmonary embolism is an observed complication of Covid-19 infection (Porfidia et al., 2021). On that basis, diagnostic testing to rule out pulmonary embolism was warranted. As previously described, one application of CT angiography is to screen for pulmonary embolism.

The interpreting physician's impression was that there was no definite evidence for pulmonary embolism on the image. Similar to the chest X-ray taken in the ED, the physician observed diffuse opacities in the lungs bilaterally. He believed that this finding was indicative of Covid-19 pneumonia but could not rule out influenza-associated pneumonia. He felt that B.D.'s aorta was unremarkable and without aortic aneurysm or dissection. Other notable findings included an apparent cholecystectomy, and degenerative changes of the spine.

2/08/22

While in the critical care unit, nursing staff became concerned about B.D.'s worsening hypoxia in combination with her Covid-19 diagnosis. The attending physician ordered a CT angiography, which was compared to the imaging taken on 1/18/22. While the interpreting physician, again, did not visualize any definite pulmonary embolism, he did note findings not observed during the first CT angiography. For example, the doctor saw enlargement of the pulmonary trunk he considered consistent with pulmonary hypertension. Compared to previous imaging, the bilateral pulmonary infiltrates appeared more extensive but consolidation in the perihilar region and bases appeared less dense. He felt that a fatty liver was evident and noted calcification of the pulmonary arteries. The client had no apparent pleural effusion, pneumothorax, aortic aneurysm, or aortic dissection. Notably, the interpreting physician saw what appeared to be layering contrast in the stomach, which he suspected was related to oral contrast. However, he stated that if the client had not taken oral contrast that GI bleeding should be considered. This student's review of B.D.'s chart did not reveal any administration of oral contrast. Furthermore, she received a diagnosis of post-hemorrhagic anemia during her stay.

X-ray, chest

1/18/22

B.D. received a chest X-ray while at the emergency department. The test was indicated to investigate the etiology of her chest pain and complaints of shortness of breath. Given her history of Covid-19, suspicion for Covid-associated pneumonia was reasonable (Gattinoni et al., 2021). According to Pagana et al. (2021), chest x-rays can be used to identify inflammatory conditions of the lung including pneumonia. The interpreting physician noted bilateral patchy opacities on the radiograph. His other findings included mild cardiomegaly and degenerative spine changes. He did not observe evidence of pneumothorax or definite pleural effusion. Per his note, there was no image available for comparison. Ultimately, B.D. did receive a diagnosis of Covid-19 pneumonia.

2/07/22

B.D.'s chest X-ray on 2/07/21 was ordered by her attending physician in the CCU. The image was warranted for two purposes. First, to monitor the condition of B.D.'s lungs. Secondly, the radiograph allowed her doctor to verify that her endotracheal tube was placed correctly. The interpreting physician compared the radiograph to an X-ray taken on 2/5/22 and a CT scan taken on 2/5/22. As in prior images, the doctor saw diffuse bilateral opacities of the lungs. He further noted cardiomegaly and a small bilateral pleural effusion. Again, no pneumothorax was evident on the radiograph. The tip of B.D.'s endotracheal tube was located at 4.3 cm above the carina.

Echocardiogram (1/25/22)

1/25/22

B.D. received an echocardiogram on 1/25/22. In addition to her primary complaint of shortness of breath, atrial fibrillation with rapid ventricular response was noted on her telemetry monitoring. Given that B.D.'s existing diagnosis of Covid-19 is independently associated with

embolic events, the development of an additional risk factor is particularly concerning (Longchamp et al., 2021; Hinkle & Cheever, 2018). Accordingly, the provider's investigating the etiology of B.D.'s atrial fibrillation was warranted. Per the cardiologist's impression, the study was technically difficult due to B.D.'s obesity and mobility issues. Because of these limitations, the doctor could not assess the pulmonary valve. B.D.'s left ventricle exhibited mild hypertrophy with an ejection fraction of 60-65%. There was mild dilation of the right ventricle. He observed trace regurgitation at the Mitral and Tricuspid valves. Other findings included a small pericardial effusion, dilation of the inferior vena cava, and no evident Mitral or Tricuspid stenosis. According to Hinkle and Cheever (2018), valvular heart disease is a risk factor for atrial fibrillation.

Electrocardiogram

1/18/22

At the emergency department, B.D. received an echocardiogram. Her clinical presentation included hypoxia, shortness of breath, and chest pain. Based on these findings, obtaining an electrocardiogram to rule out myocardial infarction was indicated (Hinkle & Cheever, 2018). Ultimately, the interpreting physician did not see ST segment or T wave changes that suggest ischemia. However, he did note sinus tachycardia at a rate of 112 bpm, right bundle branch block, and a prolonged QRS complex. B.D.'s right bundle branch block can be correlated to her history of COPD (Demissie, 2018). Tachycardia, in turn, is a known manifestation of acute respiratory failure (Holman et al., 2019).

2/8/22

B.D. remains on continuous telemetry while in the CCU. Throughout our encounter, B.D. exhibited sinus tachycardia with a heart rate consistently in the 120-130 beats per minute range.

Ultrasound, upper and lower extremities

1/20/22

B.D. received an order for a venous duplex ultrasound of her bilateral upper and lower extremities on 1/20/22. The clinical indication was concern for deep vein thrombosis arising secondary to her Covid-19 diagnosis. Embolic events, particularly deep vein thrombosis and pulmonary embolism, are known complications of Covid (Longchamp et al., 2021; Porfidia et al., 2021). The interpreting physician's impression was that the exam showed no evidence of deep vein thrombosis or other abnormalities.

2/1/22

On 2/1/22, B.D. received a second venous duplex ultrasound of her bilateral upper and lower extremities. This procedure was performed for the same indication. Again, no evidence for DVT was noted. The image was compared to the previous results from 1/20/22. However, the interpreting physician does state that the exam was limited due to B.M.'s inability to tolerate ideal positioning.

Diagnostic Test Reference (1) (APA):

Demissie, W. R. (2018). Prevalence of cardiac arrhythmias among chronic obstructive pulmonary disease patients admitted to Jimma University Medical Center. *Biomedical Journal of Scientific & Technical Research*, *10*(5), 1-6. https://doi.org/10.26717/BJSTR.2018.10.002001

Gattinoni, L., Gattarello, S., Steinberg, I., Busana, M., Palermo, P., Lazzari, S., Romitti, F., Quintel, M., Meissner, K., Marini, J. J., Chiumello, D., & Camporota, L. (2021). Covid-

19 pneumonia: Pathophysiology and management. European Respiratory Review, 30, Article 210138. https://doi.org/10.1183/16000617.0138-2021

Hinkle, J. L., & Cheever, K. H. (2018). *Brunner & Suddarth's textbook of medical-surgical nursing* (14th ed.). Wolters Kluwer.

Longchamp, G., Manzocchi-Besson, S., Longchamp, A., Righini, M., Robert-Ebadi, H., & Blondon, M. (2021). Proximal deep vein thrombosis and pulmonary embolism in Covid-19 patients: A systematic review and meta-analysis. *Thrombosis Journal*, *19*, Article 15. https://doi.org/10.1186/s12959-021-00266-x

Pagana, K. D., Pagana, T. J., & Pagana, T. N. (2021). *Mosby's diagnostic and laboratory test reference* (15th ed.). Elsevier.

Porfidia, A., Mosoni, C., Talerico, R., Porceddu, E., Lupascu, A., Tondi, P., Landi, F., & Pola, R. (2021). Pulmonary embolism in Covid-19 patients: Which diagnostic algorithm should we use? *Frontiers in Cardiovascular Medicine*, *8*, Article 714003.

Current Medications (10 points, 1 point per completed med)
10 different medications must be completed

Home Medications (5 required)

Brand/ Generic	**Cymbalta/ duloxetine**	**Zyloprim/ allopurinol**	**Cozaar/ losartan**	**Demadex/ torsemide**	**Lipitor/ atorvastatin**
Dose	60 mg	300 mg	100 mg	20 mg	20 mg
Frequency	Once daily	Once daily	Once daily	Twice daily	Once daily
Route	PO	PO	PO	PO	PO
Classification	Therapeutic: Antidepressant Chemical: Selective serotonin and norepinephrine	Therapeutic: Antigout Chemical: Hypoxanthine derivative	Therapeutic: Antihypertensive, renoprotector Chemical:	Therapeutic: Antihypertensive, diuretic Chemical: Anilinopyridine	Therapeutic: Antihyperlipidemic, HMG-CoA reductase inhibitor Chemical:

	reuptake inhibitor		Angiotensin II receptor antagonist	sulfonyurea derivative.	Synthetically derived fermentation product
Mechanism of Action	Duloxetine is thought to elevate mood and inhibit pain by facilitating CNS noradrenergic and serotenergic activity. It accomplishes this through the inhibition of dopamine, serotonin, and norepinephrine reuptake.	Allopurinol inhibits xanthine oxidase, which in turn prevents the conversion of hypoxanthine and xanthine to uric acid.	Losartan prevents angiotensin II from binding to receptor sites. Because angiotensin II is blocked, it is unable to exert its vasoconstrictive effects or stimulate aldosterone secretion from the renal cortex. Renoprotection occurs through losartan's albumin-lowering effects.	Torsemide works in the Loop of Henle to prevent the reabsorption of chloride, sodium, and water. Furthermore, it causes vasodilation by increasing serum renin though it's promotion of prostaglandin release.	Atorvastatin's inhibition of HMG-CoA reductase decreases levels of cholesterol and lipoproteins. This also drug facilitates LDL catalysis by increasing the quantity of LDL receptors in liver cells.
Reason Client Taking	B.D. has a history of depression.	B.D. has a history of gout.	B.D. has a history of hypertension and heart failure.	B.D. has a history of hypertension and heart failure.	B.D. has a history of dyslipidemia.
Contraindications (2)	1. Duloxetine should not be taken by clients with hepatic insufficiency. 2. Uncontrolled angle-closure glaucoma.	1. Clients taking ace inhibitors and allopurinol concurrently are at an increased risk for hypersensitivity reactions. 2. Allopurinol inactivates azathioprine and mercaptopurine. Accordingly, do not take them concurrently.	1. Losartan should not be taken at the same time as Aliskiren in diabetic or renally impaired patients. 2. Hypersensitivity to losartan or its components.	1. Anuric patients 2. Hepatic coma	1. Active hepatic disease. 2. Hypersensitivity to atorvastatin or its components.
Side Effects/ Adverse Reactions (2)	1. Neuroleptic malignant syndrome. 2. Acute pancreatitis.	1. Agranulocytosis 2. Hepatic necrosis	1. Thrombocytopenia 2. Angiodema	1. Tinnitus 2. Hyperglycemia	1. Anemia 2. Rhabdomyolysis
Nursing Considerations (2)	1. Watch the client closely for suicidal ideation, particularly when initiating therapy or changing	1. Monitor the client carefully for possible hypersensitivity reactions. If hypersensitivity is	1. The nurse should be aware that losartan can be used concurrently	1. The nurse should monitor clients taking digoxin concurrently carefully;	1. This drug should be used cautiously in patients who have a significant history of alcohol

	dosage. 2. This drug should not be taken to clients with severe renal impairment. In these clients, blood levels of duloxetine are significantly elevated.	suspected, discontinue the treatment immediately and contact the physician. 2. Assess the patient regularly and as needed for bruising, fever, chills, gout attack, numbness, or tingling.	with other antihypertensi on drugs. 2. The nurse should be aware that African-American clients with concurrent hypertension and left ventricular hypertrophy may not benefit from the reduced stroke risk associated with losartan.	torsemide-related electrolyte imbalances, should they occur, increase the risk of fatal arrhythmias and toxicity. 2. Monitor blood pressure before and throughout therapy to assess for effectiveness and hypotension.	use. 2. Atorvastatin therapy can impede glucose control in diabetics; watch these clients' blood glucose levels carefully.
Key Nursing Assessment(s)/Lab(s) Prior to Administration	1. This medication can lower serum sodium. Use with caution in elderly clients taking diuretics or experiencing volume depletion, 2. Assess the patient's baseline blood pressure before initiating therapy and monitor throughout; orthostatic hypotension is a potential adverse effect of duloxetine.	1. A baseline CBC and uric acid level should be checked before beginning therapy. 2. Renal and liver function tests should be monitored prior to starting and during therapy due to the risks of nephrotoxicity and hepatotoxicity.	1. Blood pressure and kidney function labs should be assessed before therapy, and throughout to determine effectiveness. 2. Losartan can increase the client's risk of hyperkalemia. Assess potassium level before therapy and periodically throughout.	1. The client's serum electrolytes should be checked before starting and during therapy due to the risk of hyponatremia, hypokalemia, hypomagnesemia, and other imbalances. 2. Clients with hepatic disease should be monitored closely when taking torsemide. Sudden shifts in fluid or electrolyte balance increase the risk of hepatic coma.	1. The nurse should expect liver function tests to be ordered prior to starting atorvastatin and throughout therapy. 2. The nurse should monitor for elevated CPK levels and assess for signs and symptoms of myopathy throughout therapy.
Client Teaching needs (2)	1. The client should be advised against discontinuing this medication suddenly due to unpleasant withdrawal symptoms including anxiety, diarrhea, nausea and vomiting, paresthesia, and nightmares. 2. The client should take the	1. The client should be advised to drink 8 to 10 glasses of water daily to support a urine output of 2L. 2. The client should be advised that gout attacks can worsen when starting allopurinol. Results may not be appreciated until more than two weeks after initiating therapy.	1. Clients should be instructed to avoid foods that contain potassium salt supplements; these may increase their risk of hyperkalemia. 2. Elderly patients or those with renal disease should be	1. The client should be advised to change position slowly to mitigate orthostatic hypotension. 2. Advise clients to avoid drinking alcohol on this medication. Alcohol use can cause additive diuresis and increase the risk of dehydration.	1. The nurse should educate clients that while atorvastatin can help lower lipoproteins and cholesterol, it complements rather than replaces a low-cholesterol diet. 2. The nurse should instruct the client to contact their provider immediately if

	client whole to avoid disrupting the enteric coating, which can decrease drug absorption.		warned that concurrent use of NSAIDs can negatively effect their renal function.		they experience unexplained muscle pain or weakness, particularly if febrile or fatigued.

Hospital Medications (5 required)

Brand/ Generic	**Levophed/ norepinephrine**	**Sublimaze/ fentanyl**	**Effexor/ venlafaxine**	**Lopressor/ metoprolol tartrate**	**BuSpar/ buspirone**
Dose	1 mcg/minute	50 mcg/hr	75 mg	5 mL (=5 mg)	15 mg
Frequency	Continuous	Continuous	Twice daily	Q4 PRN	Twice daily
Route	IV	IV	Via G-Tube	IV Push	Via G-Tube
Classification	Chemical: Catecholamine Therapeutic: Cardiac stimulant, vasopressor	Chemical: Opioid, phenylpiperidine derivative Therapeutic: Analgesic	Chemical: Phenylethylamine derivative Therapeutic: Antidepressant	Chemical: Beta-1-adrenergic blocker Therapeutic: Antianginal, antihypertensive, MI prophylaxis and treatment.	Chemical: Azaspirodecanedione. Therapeutic: Anxiolytic
Mechanism of Action	Norepinephrine works by inhibiting cyclic AMP production. Decreased cyclic AMP causes arterial and venous vasoconstriction, which increases peripheral vascular resistance and systolic blood pressure.	Fentanyl alters pain perception by binding opioid receptor sites in the CNS and inhibiting ascending pain pathways.	Venlafaxine raises norepinephrine and serotonin levels at the nerve synapse by inhibiting reuptake of norepinephrine, serotonin, and O-desmethylvenlafaxine.	Metoprolol decreases cardiac excitability, output, and myocardial oxygen demand by inhibiting stimulation of beta-1-receptor sites in the heart.	Buspirone is believed to produce it's anxiolytic affects by acting as a partial antagonist at serotonin-5-hydroxytryptamine receptors in the brain.
Reason Client Taking	Norepinephrine is used in the treatment of acute hypotensive states and profound hypotension. B.D.'s order for Norepinephrine is explicitly to maintain a mean arterial pressure of >65 mm Hg.	B.D. is explicitly taking this medication for pain control per her order. Specifically, she is receiving continuous fentanyl titration to maintain a pain level <3/10.	B.D. takes venlafaxine to treat her depression.	B.D.'s order was explicitly written for the purpose of keeping B.D.'s heart rate <110.	B.D. is taking this medication for her diagnosis of anxiety.

Contraindications (2)	1. Hypovolemia 2. Mesenteric or peripheral vascular thrombosis.	1. Upper airway obstruction. 2. Significant respiratory depression.	1. Use of an MAOI within the past 14 days. 2. Using venlafaxine and clozapine simultaneously increases the risk for increased clozapine levels and severe adverse reactions including seizures.	1. Acute heart failure 2. Cardiogenic shock	1. Severe hepatic impairment. 2. Severe renal impairment.
Side Effects/ Adverse Reactions (2)	1. Headache 2. Sinus tachycardia	1. Respiratory depression 2. Urine retention	1. Prolonged QT interval 2. neutropenia	1. Drowsiness 2. Atrioventricular block	1. Akathisia 2. Angioedema
Nursing Considerations (2)	1. The nurse should ensure that the solution of norepinephrine is free from particles and discoloration before administering it. 2. The nurse should be aware that extravasation of norepinephrine is associated with severe tissue damage. If extravasation occurs, anticipate the provider ordering subcutaneous phentolamine injections.	1. This medication should be used with extreme caution when given to COPD patients. Even therapeutic doses of fentanyl can significantly decrease respiratory drive in these patients. 2. The nurse should exercise caution when titrating fentanyl dosage in elderly, cachetic, or debilitated patients. Such patients are more sensitive to the drug's effects.	1. Venlafaxine should not be given to clients with bradycardia, congenital long QT syndrome, hypokalemia, hypo magnesemia, or recent myocardial infarction due to an increased risk for prolonged QT interval and Torsades de Pointes. 2. The medication should be used cautiously in clients with a history of mania; venlafaxine may worsen their condition.	1. Use metoprolol cautiously in patients with hypertension and congestive heart failure. Beta-blockers can worsen heart failure by decreasing contractility. 2. The nurse should anticipate a dosage decrease if a patient with heart failure develops symptomatic bradycardia.	1. The nurse should be aware that, in clients switching from a benzodiazepine, that buspirone will not prevent withdrawal symptoms. 2. The nurse should be aware that buspirone can alter the client's level of consciousness and plan for their safety accordingly.
Key Nursing Assessment(s)/Lab(s) Prior to Administration	1. Norepinephrine can affect cardiac rhythm and manifest ECG changes. Accordingly, the client's cardiac rhythm should be assessed before therapy and during via telemetry. 2. Norepinephrine is associated with metabolic acidosis. If possible, expect to	1. The patient's respiratory status should be monitored closely, particularly within the first 72 hours of therapy or with dose increases. 2. In patients with bradycardia,	1. The client's electrolyte balance should be assessed prior to and during therapy. Venlafaxine can cause hyponatremia in the elderly, particularly if they are on diuretic therapy.	1. Prior to starting metoprolol, the patient should receive an ecg to screen for 2nd or 3rd degree AV block. 2. The nurse should assess the client's pulse prior to administering metoprolol and hold the medication as	1. Hepatic and renal function should be assessed prior to starting and throughout therapy. 2. The nurse should regularly assess clients receiving buspirone for

	assess the client's ABG values prior to initiating therapy.	cardiac monitoring should be implemented. The nurse should assess heart rate and rhythm frequently because fentanyl can further slow the patient's heart rate.	2. The nurse should carefully assess the client's history for conditions that can be made worse by an elevated heart rate including heart failure, hyperthyroidism, and recent myocardial infarction.	ordered for bradycardia.	dyskinesias.
Client Teaching needs (2)	1. Teach the client to recognize and immediately report blanching around the vein. If this occurs, the nurse will need to change the infusion site and alert the physician. 2. The client should report chest pain to the nurse if it occurs during norepinephrine therapy.	1. The client should avoid alcohol and other CNS depressants while taking fentanyl unless prescribed by a physician. 2. The patient should be advised to avoid hazardous activities until CNS effects are known.	1. The client should be advised that venlafaxine can cause false positives for amphetamine and phencyclidine on urine drug screens. 2. Advise the client to have an eye exam before starting therapy due to risk of acute closure glaucoma.	1. The client should be warned not to stop taking metoprolol abruptly. Doing so can increase the risk for heart attack, severe hypertension, and ventricular arrhythmias. 2. Diabetic clients should be made aware that they will likely require more frequent blood glucose checks while taking metoprolol.	1. The client should be advised to avoid drinking grapefruit juice while taking this medication. 2. Clients should be advised that it can take 1-2 weeks before anxiety begins to lessen while on buspirone.

Medications Reference (1) (APA):

Jones & Bartlett Learning. (2019). *2019 nurse's drug handbook* (18th ed.). Jones & Bartlett Learning, LLC.

Assessment

Physical Exam (18 points) – HIGHLIGHT ALL PERTINENT ABNORMAL FINDINGS

GENERAL: **Alertness:** Lethargic. **Orientation:** Unable to determine. Please see progress note. **Distress:** No distress is evident.	B.D. looks to be her documented age. She appears physically unwell; B.D. is morbidly obese with a disheveled appearance. The client has multiple wounds, diffuse bruising to both arms, and substantial edema to her right upper

Overall appearance: The client appears to be her stated age, and physically unwell.	extremity. B.D. is lethargic but responds to verbal and physical stimuli. The student was unable to definitively determine her level of orientation due to her non-verbal status related to intubation. The client does nod affirmatively when asked if she knows where she is and nods negatively when asked if she has any pain or discomfort. Furthermore, she attempts to comply with simple requests. The client does not appear distressed. At the time of the student's assessment, B.D. rests quietly in her bed unless spoken to. FLACC score: 0.
INTEGUMENTARY: **Skin color:** Pale-pink and appropriate for ethnicity. **Character:** Clean and dry with impaired integrity. **Temperature:** Warm. **Turgor:** Elastic. **Rashes:** Irritation to abdominal fold and under breasts bilaterally. **Bruises:** Diffuse bruising to abdomen and bilateral arms. **Wounds:** A single ruptured blister to the medial aspect of lower abdomen; One open area under each breast; Unstageable pressure area to coccyx; Insertion site from discontinued midline IV in RUE. **Braden Score:** 13 **Drains present: Y☐ N ☒** **Type: n/a**	B.D.'s skin is warm, clean, and dry to the touch with elastic turgor. The color of her skin is pale-pink and appropriate for her ethnicity. The student observes that B.D.'s skin integrity is compromised. The skin crease under B.D.'s abdominal fold and breasts appears red and irritated but are blanchable. Each arm features diffuse bruising. The client's lower abdomen has multiple bruises in various stages of healing. The client's forehead appears excoriated. Scabs are noted to B.D.'s right cheek and the bridge of her nose. There is a single ruptured blister to the client's medial lower abdomen. There is a single open area under each of the client's breasts. The student notes an unstageable pressure area to B.D.'s coccyx, which is approximately dime-sized. All open areas are covered with a Mepilex dressing. The client's Braden Score is 13, which corresponds to a moderate risk for pressure injury.
HEENT: **Head/Neck:** Normocephalic, trachea midline, thyroid non-palpable. Lymph nodes non-palpable. **Ears:** External structures are intact. No drainage noted.	B.D.'s head is normocephalic. The preauricular, posterior auricular, tonsillar, submandibular, and submental lymph nodes are non-palpable. The client's thyroid gland is non-palpable. Trachea is mid-line.

Eyes: PERRLA **Nose:** Assessment limited. No epistaxis, septum is midline. **Teeth:** Dentition is poor. Significant yellowing and multiple missing teeth noted.	The external structures of B.D.'s ears are intact bilaterally. No drainage or bleeding from either ear is noted. PERRLA. Pupils are 4 mm bilaterally. Unable to evaluate extraocular movement due to patient's inability to keep her eyes open at the time of assessment. The student's assessment of B.D.'s nasal cavity is limited. No epistaxis or septal deviation is observed. Inspection of the oral cavity is limited by the presence of the client's endotracheal tube. The student notes that overall dentition is poor; B.D. is missing multiple teeth. Present teeth are yellow in color. The client's lips appear dry with cracking noted to the left lower lip. The oral mucosa and tongue are moist, intact, and pink in color. The student was unable to visualize the tonsils or uvula due to the presence of B.D.'s endotracheal tube. .
CARDIOVASCULAR: **Heart sounds:** S1, S2 **S1, S2, S3, S4, murmur etc.** **Cardiac rhythm (if applicable):** Sinus tachycardia. **Peripheral Pulses:** +3 radial, +2 pedal **Capillary refill:** <3 seconds. **Neck Vein Distention: Y ☐ N ☒** **Edema Y ☒ N ☐** Location of Edema: R forearm, wrists, and hands. Correlates with recent infiltration of discontinued midline.	The student auscultated S1, S2 heart sounds. B.D.'s present cardiac rhythm is sinus tachycardia at 122 beats per minute. Bilateral radial pulses are 3+. Bilateral pedal pulses are 2+. Capillary refill <3 seconds in bilateral upper extremities. No JVD is noted. D.B. has 2+ edema to her right forearm, wrists, and hands.
RESPIRATORY: **Accessory muscle use: Y☐ N ☒** **Breath Sounds: Location, character** Lung sounds are coarse in all lobes anteriorly, posteriorly, and bilaterally. **ET Tube:**	B.D.'s breath sounds are coarse throughout all fields anteriorly, posteriorly, and bilaterally. The student did not observe any accessory muscle use. Currently, B.D. is intubated with a size 7.5 endotracheal tube. The position of the tube at her lip is 24 cm. The respiratory rate is set at 26

Size of tube: 7.5 **Placement (cm to lip):** 24 cm **Respiration rate:** 26 breaths per minute **FiO2:** 55% **Tidal volume (TV):** 360 mL **PEEP:** 12 cm H20 **VAP prevention measures:** Examples of VAP prevention measures taken by the nursing team this shift include: (1) Providing routine oral care; (2) Providing regular suctioning; and (3) Elevating the head of the client's bed.	breaths per minute. The FiO2 setting is at 55%. Tidal volume is set to 360 mL. PEEP pressure is currently 12 cm H20.
GASTROINTESTINAL: **Diet at home:** No added salt **Current Diet:** NPO, however receiving NG feedings prior to this**.** **Height:** 158.75 cm **Weight:** 158.5 kg **Auscultation Bowel sounds:** Present x4 **Last BM:** Last formed BM was 2/7/22. Smears today. **Palpation: Pain, Mass etc.:** **Inspection:** **Distention:** Obese **Incisions:** None **Scars:** None **Drains:** None **Wounds: Open area approximately** **Ostomy: Y ☐ N ☒** **Orogastric: Y ☒ N ☐** **Size:** 14 French **Feeding tubes/PEG tube Y ☒ N ☒** **Type:** n/a	Because B.D. is unable to discuss her home diet with the client due to her lethargy and intubation, the student obtained that information through a review of documentation from her skilled care facility. Prior to hospitalization, the patient consumed a no added salt diet. Currently, B.D. is NPO in anticipation of a tracheostomy this evening. Prior to that, she was receiving Jevity 1.2 at 60 mL/hr per orogastric tube. B.D.'s height and weight are, respectively, 158.75 cm and 158.5 kg. The student auscultates present bowel sounds in all four quadrants. Documentation indicates that the client's last formed bowel movement occurred on 2/7/22. During our encounter, she has smears of stool. B.D. gives no indication of pain during palpation. The student palpates no masses. Her abdomen is soft and obese. No incisions, scars, or drains are noted. B.D. has blanchable erythema along the crease of her abdominal fold. She has a small open area to her abdominal fold's crease, near the midline. A Mepilex dressing is placed on the site today. B.D. has no ostomy. She has a 14 French orogastric tube. The tube is easily flushed and patent.

GENITOURINARY: **Color:** Dark yellow **Character:** Clear **Quantity of urine:** 150 mL **Pain with urination: Y ☐ N ☒** **Dialysis: Y ☐ N ☒** **Inspection of genitals:** **Catheter: Y ☒ N ☐** **Type:** Foley Catheter **Size:** 16 French **CAUTI prevention measures:** Clients should only be catheterized when necessary. Sterile technique, including a sterile field, should be maintained when inserting catheters.Quality perineal care should be performed regularly. Staff should observe proper handwashing.	B.D. has a 16 French indwelling foley catheter that drains clear, dark yellow urine in to her bedside bag. Measured urine output for this student's shift was 150 mL. She is not receiving dialysis. The student is unable to discuss urinary symptoms with B.D. due to her lethargy and non-verbal status. FLACC score = 0.
MUSCULOSKELETAL: **Neurovascular status:** See progress note. **ROM:** See progress note. **Supportive devices:** Patient presently bedbound. **Strength:** The client does not demonstrate a full range of motion in any of her extremities. 2/5 to upper and lower extremities bilaterally. **ADL Assistance: Y☒ N ☐** **Fall Risk: Y ☒ N☐** **Fall Score:** 75 **Activity/Mobility Status:** Bed-bound. Client is entirely dependent on nursing staff for mobility and ADLs. **Independent (up ad lib)** ☐ **Needs assistance with equipment** ☐ **Needs support to stand and walk** ☐ **N/A:** Patient bed-bound at this time.	.The student's neurovascular assessment is limited by the client's condition. She nods to deny any pain and was assessed a FLACC score of 0. Bilateral lower extremities are warm to the touch, pale-pink in color, and feature 2+ pedal pulses. The client makes slight movements in all extremities on request. The left and right upper extremities are warm to the touch and are pale-pink in color. 3+ radial pulse palpable on B.D.'s bilateral upper extremities. The student is unable to assess for paresthesias in the bilateral upper extremities or bilateral lower extremities. However, the client does respond to painful stimuli in all extremities. B.D. demonstrates a limited active range of motion in all extremities. She is able to make slight movements on request or in response to stimulation. Range of motion is compromised in her RUE, which exhibits +2 edema at the wrist and forearm. Because B.D. lacks a full active range of motion in any extremity, muscle strength is necessarily graded at a 2/5 in bilateral upper and lower extremities. While she can produce slight movements against gravity, the joints of her arms

	and legs go through their full range only if gravity is eliminated or with assistance. At the point of our encounter, B.D. is bed-bound and entirely reliant on nursing staff for bed mobility and ADLs. The client's calculated Morse Fall Score is 75, which corresponds to a high risk of falls.
NEUROLOGICAL: **MAEW: Y ☐ N☒** **PERLA: Y ☒ N☐** **Strength Equal: Y ☐ N ☒ if no -** **Legs ☐ Arms ☒ Both ☐** **Orientation:** Unable to assess due to client's lethargy and non-verbal status. **Mental Status:** Unable to assess due to client's lethargy and non-verbal status. **Speech:** Unable to assess; B.D. is intubated at the time of our encounter. **Sensory:** B.D. is hard of hearing. Tactile sensation is intact. Unable to definitively assess client's other senses due to her status. **LOC:** Lethargic.	B.D. is lethargic, but opens her eyes to verbal and physical stimuli. This student observes that B.D. attempts to follow verbal requests. Specifically, B.D. was able to squeeze her hands and move her toes when asked. This student is unable to definitely assess B.D.'s orientation due to her lethargic level of consciousness and inability to speak while intubated. B.D. does nod affirmatively when asked if she knows where she is and nods negatively when asked if she is in pain. FLACC score = 0. The patient can move her feet and toes equally well bilaterally. While the client was able to move her arms slightly against gravity on request, the movement of her right arm was limited compared to the left. B.D.'s hand grip is weak on her right side relative to the left. The client is dependent on nursing staff to adjust her position in bed and does not spontaneously attempt to move her extremities. The student was unable to completely assess B.D.'s sensorium. The patient is hard of hearing and responds to verbal stimuli only when the student speaks slowly and in close proximity to her. B.D. withdraws from painful stimuli to bilateral upper and lower extremities. While her eyes are open, B.D. appears to attempt to track objects. However, the student could not determine her visual acuity. Due to her intubation and inability to speak, the student was unable to assess B.D.'s senses of smell and taste.

PSYCHOSOCIAL/CULTURAL: **Coping method(s):** The client discusses problems with her daughter and members of her church. **Developmental level:** Unable to assess. **Religion & what it means to pt.:** B.D. identifies as a Baptist. Per her daughter, her faith is a source of strength for her. **Personal/Family Data (Think about home environment, family structure, and available family support):** According to her daughter, despite their geographical separation she and her mother have a close relationship and talk frequently. She identifies herself as her primary source of family support.	Due to B.D.'s lethargy and intubation, the student is unable to assess if her developmental level is appropriate for her age. Furthermore, he collected psychosocial data during his interview with the client's daughter. B.D. is a devout Baptist who views her faith as a source of strength when challenged. Prior to illness, B.D. was actively involved in her church and taught Sunday school. For coping, B.D. primarily relies on discussing her problems with her daughter and members of her congregation. B.D. is divorced, and her daughter states that B.D.'s husband was emotionally abusive to her during their marriage. B.D.'s sister is deceased. According to B.D.'s daughter, despite their geographical separation they have a close relationship and talk frequently. Nevertheless, because her daughter lives a substantial distance away from her mother, she is unable to meet her physical care needs. Because of this, prior to her hospitalization, B.D. was placed in a skilled nursing facility following a fall.

Vital Signs, 2 sets (5 points) – HIGHLIGHT ALL ABNORMAL VITAL SIGNS

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0850	122 beats per minute	104/51 mm Hg	29 respirations per minute	**37.7 degrees Celsius**	**94% on 55% FiO2**
1258	128 beats per minute	100/49 mm Hg	28 respirations per minute	**37.6 degrees Celsius**	**97% on 55% FiO2**

Vital Sign Trends/Correlation:

Pulse

The client's pulse increased by 6 beats per minute between the 0850 and 1258 measurements. Both recorded values are abnormally high.

Blood Pressure

The client's blood pressure decreased by 4 mm Hg systolically and 2 mm Hg diasolically between the 0850 and 1258 measurements.

Respiratory Rate

The client's respiratory rate decreased by 1 beat per minute between the 0850 and 1258 measurements. Both recorded respiratory rates were abnormally high.

Temperature

The client's temperature decreased by 0.1 degrees Celsius between the 0850 and 1258 measurements. Both recorded temperatures were abnormally high.

Oxygen

Pain Assessment, 2 sets (2 points)

Time	Scale	Location	Severity	Characteristics	Interventions
0830	FLACC	n/a	0	n/a	The patient continues to receive IV fentanyl @ 50 mcg/hr
1220	FLACC	n/a	0	n/a	The patient continues to receive IV

					fentanyl @ 50 mcg/hr

IV Assessment (2 Points)

IV Assessment	**Fluid Type/Rate or Saline Lock**
Size of IV: 18 gauge **Location of IV:** Left upper arm **Date on IV:** 2/6/22 **Patency of IV:** Patency established and maintained with 0.9% saline flushes q8h. **Signs of erythema, drainage, etc.:** No erythema, drainage, or added warmth to the surrounding area is noted. **IV dressing assessment:** The lateral corner of the adhesive of the dressing's border is beginning to peel. The dressing remains occlusive and clean.	The student notes an 18-gauge midline in B.D.'s left upper arm. The lateral corner of B.D.'s dressing is peeling. However, the dressing remains occlusive, clean, and dry. No erythema, drainage, or added warmth to the surrounding area. The line is saline-locked at the time of assessment. Patency is established and maintained with 10 mL flushes of 0.9% normal saline every 8 hours and as needed.
Other Lines (PICC, Port, central line, etc.)	
Type: Internal Jugular Vein Catheter, Triple Lumen. **Size:** 18 gauge **Location:** Left jugular vein**.** **Date of insertion: 2/5/22** **Patency:** Patent; currently receiving IV infusions through line. **Signs of erythema, drainage, etc.:** No erythema, drainage, or added warmth to the surrounding area is noted. **Dressing assessment:** Some dried blood is visible under the transparent window. The dressing remains clean, intact, and occlusive. **Date on dressing:** 2/5/22 **CUROS caps in place: Y ☒ N ☐** **CLABSI prevention measures:** Observe appropriate hand hygiene, discontinue and remove unnecessary lines, use chlorhexidine for cleansing the patient's skin.	The student notes an 18-gauge, triple lumen IJ catheter in B.D.'s left jugular vein. The date on the dressing is 2/5/22, which is the documented date of insertion. The IJ catheter is patent. Verified patency with 10 mL saline flush. B.D is currently receiving a continuous infusion of norepinephrine at 3.7 mL/hr (= 1 mcg/min) and a continuous infusion of fentanyl at 10 mL/hr (=50 mcg/hour). Curos cap is in place. The dressing to the insertion site is clean, dry, and intact. Some dried blood at the insertion site is visible through the dressing's transparent window.

Intake and Output (2 points)

Intake (in mL)	**Output (in mL)**

IV fentanyl: 50.17 mL IV norepinephrine: 16.3 mL 0.9% NS IV Bolus: 250 mL 0.9% NS IV flush: 10 mL OG tube medications and H20 flushes: 100 mL **Total**: 426.7 mL	Stool: Smearing x1. Urine: 150 mL Suction drainage: 200 mL **Total**: 350 mL

Nursing Care

Summary of Care (2 points)

Overview of care: During this student's shift he collected vital signs, completed a head-to-toe assessment, administered scheduled medications, assisted the client with repositioning, monitored intake and output, provided oral care, and performed endotracheal suctioning.

Procedures/testing done: B.D. did not have any procedures or tests performed while under the student's care.

Complaints/Issues: Neither the client nor her daughter communicated any complaints during this student's shift.

Vital signs (stable/unstable): While B.D.'s blood pressure, pulse, respirations, and temperature remained in an abnormal range for the duration of the shift the variation between their initial and final measurements were small. Oxygen increased modestly by the end of the shift from 94% to 97% on 55% FiO2.

Tolerating diet, activity, etc.: The patient is NPO at the time of our encounter due to her planned tracheostomy this evening. Prior to this she was receiving Jevity 1.2 at 60 mL/hr per orogastric tube, which she tolerated well. Consequent to her lethargy, B.D. is presently bed-bound and requires total assistance for mobility and ADLs.

Physician notifications: Participated in rounding with the attending physician to discuss client's status and course of treatment. No other physician notifications were performed.

Future plans for client: B.D. is expected to receive a tracheostomy this afternoon. Her prognosis remains uncertain. The attending physician's hope is that she will be successfully weaned from mechanical ventilation in the coming days.

Discharge Planning (2 points)

Discharge location: No discharge is currently planned. The patient's daughter reports living approximately three hours away and B.D. is likely to require complex and comprehensive care upon discharge. Consequently, it is expected that she will return to the skilled nursing facility she resided at prior to hospitalization.

Home health needs (if applicable): B.D. has had a protracted inpatient stay with several complications and extended periods of physical inactivity. Over the course of her stay, B.D. required intubation, feedings by orogastric tube, and will receive a tracheostomy. The client has multiple risk factors for further complications and has likely experienced significant physical deconditioning. Before hospitalization, the patient received physical therapy at the nursing home. Accordingly, this student anticipates B.D. will require skilled nursing, physical and occupational therapy, speech therapy, and nutritionist services.

Equipment needs (if applicable): According to the patient's daughter, B.D. relied on a wheeled walker for mobility before her stay at the hospital. Furthermore, she had been receiving supplemental oxygen at 3L/min by nasal cannula for approximately one year. This student expects that, when discharged, B.D. will continue to require oxygen therapy and an assistive device for mobility. While identifying the appropriate assistive device will depend on an evaluation by physical therapy, the student anticipates that B.D. could require a wheelchair in the near-term.

Follow up plan: After discharge, B.D. will need to follow up with her primary care provider and any indicated specialists. The client's history includes diagnoses of diastolic heart failure, chronic kidney disease, acute kidney injury, and chronic obstructive pulmonary disease. Based on this problem list, it is reasonable to expect B.D. will require the care of pulmonology, nephrology, and cardiology specialists. Case management should verify that the client keeps these appointments.

Education needs:

On discharge, the student expects B.D. will require information on strategies to prevent infection, education on any new medications, instructions for wound and tracheostomy care, and teaching regarding symptoms of complications that she should report to her care team. Furthermore, discussion with the client's daughter revealed that her mother has suffered longstanding issues with depression and anxiety. Per her daughter, B.D. primarily associates these issues with low self-esteem. Accordingly, the student nurse believes the client will benefit from education on effective coping skills.

Nursing Diagnosis (15 points)
Must be NANDA approved nursing diagnosis and listed in order of priority

Nursing Diagnosis • Include full nursing diagnosis with "related to" and "as evidenced by" components • Listed in order by priority – highest priority to lowest priority pertinent to this client	**Rationale** • Explain why the nursing diagnosis was chosen	**Interventions (2 per dx)**	**Outcome Goal (1 per dx)**	**Evaluation** • How did the client/family respond to the nurse's actions? • Client response, status of goals and outcomes, modifications to plan.
1. Impaired gas exchange related to inflammatory pulmonary process as evidenced by presence of bilateral ground glass opacities on CT scan and recurring hypoxia.	Maintaining gas exchange and adequate oxygenation is the highest priority for this client.	1.The nurse will keep the client's head of bed elevated throughout the shift to promote thoracic expansion lung perfusion. 2.The nurse will assess the client's ventilator function and	1. The client will maintain an SaO2 of > 94% on 55% FiO2 for the duration of this shift.	The client remained lethargic during this shift, but tolerated the interventions. The goal for this diagnosis was met. By the end of this nurse's shift, the client's O2 increased to 97% on 55% FiO2.

		settings every two hours and PRN this shift to ensure the client receives mechanical ventilation as ordered.		
2. Ineffective tissue perfusion related to reduced cardiac output as evidenced by mean arterial pressure of 52 mm Hg.	Maintaining adequate perfusion represents an important homeostatic need.	1. The nurse will administer IV levophed per titration protocol as ordered to maintain MAP >65 mm Hg 2.The nurse will assess peripheral extremities for warmth, pulse rate and strength, and capillary refill every two hours and as needed.	1. The client will maintain an MAP >65 mm Hg for the duration of this shift.	Goal partially met. While the client maintained an MAP of > 65 mm Hg by the end of the shift, the client was unable to do so when the levophed infusion was D/C'd.
3. Impaired skin integrity related to immobility as evidenced by observed dime-sized wound to coccyx.	The client has multiple open wounds as of our date of encounter. Interventions to promote healing of existing wounds and prevent new ones from developing	1. The nurse will assist the client with repositioning every two hours and as needed. 2. The nurse will place protective dressings over open	1. All open wounds will be cleansed and covered with clean, dry, and intact dressings by the end of the shift.	The goal was met. The patient tolerated q2h turning well this shift. During the nurse's head to toe assessment, all open but uncovered areas were noted. These areas were cleansed and covered with a

	are indicated.	areas this shift per unit protocol.		protective dressing.
4. Risk for falls related to weakness as evidenced by client's assessed Morse Fall Score of 75	Although the client has not fallen as an inpatient, her assessed fall risk is high and she has a history of falling at home.	1. The nurse will ensure at least two staff members are present to assist client with bed mobility. 2. The nurse will verify that the client's bed rails are in place each time he leaves her room.	1. The client will remain free from falls this shift.	The goal was successfully met. The client remained in bed and free from falls for the duration of this student's shift.
5. Impaired social interaction related to limitations related to illness as evidenced by presence of endotracheal tube.	This diagnosis was ranked last because it is a psychosocial need rather than a physiologic one. Nevertheless, the client has had a protracted illness and would benefit form interventions to promote her socialization.	1. The nurse will allow the client sufficient time to process what the nurse has said and respond by nodding. 2. The nurse will use a whiteboard to facilitate 1:1 interaction for 15 minutes this shift.	1. The client will participate in a 15-minute social interaction this shift.	The goal was not met. Given the client's lethargy, the student believes in retrospect that the goal was too ambitious. Furthermore, the client's edema to her right arm limits her ability to manipulate a marker. Moving forward, the nurse should consider alternative methods like picture boards.

Other References (APA):

Gulanick, M., & Myers, J. L. (2017). *Nursing care plans: Diagnoses, interventions, & outcomes* (9th ed.). Elsevier.

Concept Map (20 Points):

Subjective Data

Client nods “no” when asked if she is in pain.

Nursing Diagnosis/Outcomes

Dx 1: Impaired gas exchange related to inflammatory pulmonary process as evidenced by presence of bilateral ground glass opacities on CT scan and recurring hypoxia.
Outcome 1: The client will maintain an SaO2 of > 94% on 55% FiO2 for the duration of this shift.

Dx 2: Ineffective tissue perfusion related to reduced cardiac output as evidenced by [illegible]
Outcome 2: All open wounds will be cleansed and covered with clean, dry, and intact dressings by the end of the shift.

Dx 3: Impaired skin integrity related to immobility as evidenced by observed dime-sized wound to coccyx.
Outcome 3: All open wounds will be cleansed and covered with clean, dry, and intact dressings by the end of the shift.

Dx 4: Risk for falls related to weakness as evidenced by client’s assessed Morse Fall Score of 75
Outcome 4: The client will remain free from falls this shift.

Dx 5: Impaired social interaction related to limitations related to illness as evidenced by presence of endotracheal tube.

Outcome 5: The client will participate in a 15-minute social interaction this shift.

Objective Data

VS: BP 100/49, P 128 bpm, RR 28/min, T 37.6 C, O2 97% on 55% FiO2
CT imaging of bilateral lungs showed ground glass opacities.
Multiple wounds: Open areas to coccyx, abdominal folds, under breasts.
Presence of endotracheal tube
Morse Fall: 75
Client is lethargic and non-verbal.
Client maintains MAP of 65 mm Hg while receiving IV norepinephrine at 1 mcg/min.

Client Information

Patient is a 72 year old female, full code. She presented to the ED with acute respiratory failure and Covid-19. Preadmission history includes CKD, COPD, diastolic heart failure, hyperlipidemia, depression, hypertension, anemia. Client has had a protracted and complex course of illness with multiple complications including UTI and AKI. Her needs for oxygen support have progressively increased. Presently, she is in the CCU where she is intubated and receiving 55% FiO2, TV 360mL, PEEP = 12, RR = 66. Patient has a midline to her right arm and a 3-luman IJ in her L jugular.

Nursing Interventions