

Oral and Parenteral Medication Administration

Skills & Reasoning



Jerry Williams, 62 years old

Primary Concept		
Perfusion		
Interrelated Concepts (In order of emphasis)		
<ul style="list-style-type: none"> • Gas Exchange • Clinical Judgment • Patient Education 		
NCLEX Client Need Categories	Percentage of Items from Each Category/Subcategory	Covered in Case Study
Safe and Effective Care Environment		
✓ Management of Care	17-23%	✓
✓ Safety and Infection Control	9-15%	
Health Promotion and Maintenance	6-12%	✓
Psychosocial Integrity	6-12%	✓
Physiological Integrity		
✓ Basic Care and Comfort	6-12%	✓
✓ Pharmacological and Parenteral Therapies	12-18%	✓
✓ Reduction of Risk Potential	9-15%	✓
✓ Physiological Adaptation	11-17%	✓

History of Present Problem:

Jerry Williams is a 62-year old obese (BMI 35.2) Caucasian male with a history of diastolic heart failure and type II diabetes. Last evening, he began having difficulty breathing with activity. He thought he might be getting a cold because he had a runny nose. He reports more swelling in his lower legs the past couple days. He woke up this morning with increased difficulty breathing when he woke up and his wife called 911.

Paramedics report that his initial VS: HR:92 RR: 28 BP: 172/88 O2 sat: 80% on room air with scattered expiratory wheezing bilat. He was placed on oxygen by facemask and albuterol nebulizer administered with some improvement in his breathing. His RR is now 24 upon arrival to the emergency department ED). His initial labs have resulted; creatinine of 2.5 (last adm. 1.8), K+ 3.5 (last adm. 3.7) and BNP 944 (last adm. 322). Jerry is given furosemide 40 mg IV in the ED and had 800 mL urine output in the last hour. He is admitted to cardiac telemetry, and you are the nurse responsible for his care.

What data from the present problem do you NOTICE as RELEVANT and why is it clinically significant?
(Reduction of Risk Potential/Health Promotion and Maintenance)

RELEVANT Data:	Clinical Significance:

What is the RELATIONSHIP of his past medical history and current medications? Why is your patient receiving these medications? (Which medication treats which condition? Draw lines to connect)

Past Medical History (PMH):	Home Medications:
Hyperlipidemia Hypothyroidism Type II diabetes Diastolic heart failure Chronic kidney disease stage III	Furosemide 20 mg PO every morning Atorvastatin 40 mg PO at bedtime Metoprolol 50 mg PO BID Levothyroxine 112 mcg PO daily Exenatide microspheres 2 mg subq. weekly

Nursing Assessment Begins:

Current VS:	Most Recent in ED:	P-Q-R-S-T Pain Assessment:	
T: 98.2 F/36.8 C (oral)	T: 98.8 F/37.1 C (oral)	Provoking/Palliative:	
P: 88 (reg)	P: 92 (reg)	Quality:	Denies
R: 24 (reg)	R: 24 (reg)	Region/Radiation:	
BP: 142/76	BP: 148/80	Severity:	
O2 sat: 93% 4 liters n/c	O2 sat: 94% 4 liters n/c	Timing:	

Current Assessment:	
GENERAL SURVEY:	Pleasant, in no acute distress, calm, body relaxed, no grimacing, appears to be resting comfortably.
NEUROLOGICAL:	Alert & oriented to person, place, time, and situation (x4); muscle strength 5/5 in both upper and lower extremities bilaterally.
HEENT:	Head normocephalic with symmetry of all facial features. PERLLA, sclera white bilaterally, conjunctival sac pink bilaterally. Lips, tongue, and oral mucosa pink and moist.
RESPIRATORY:	Breath sounds coarse crackles in bases bilat. with equal aeration on inspiration and expiration in all lobes anteriorly, posteriorly, and laterally, nonlabored respiratory effort.
CARDIAC:	Pale/pink, warm & dry, 2+ pitting edema in feet and ankles, heart sounds regular, pulses strong, equal with palpation at radial/pedal/post-tibial landmarks, brisk cap refill. Heart tones audible and regular, S1 and S2 noted over A-P-T-M cardiac landmarks with no abnormal beats or murmurs. Unable to assess JVD due to obesity/thick neck
ABDOMEN:	Abdomen round, soft, and nontender. BS + in all four quadrants
GU:	Voiding without difficulty, urine clear/yellow
INTEGUMENTARY:	Skin warm, dry, intact, normal color for ethnicity. No clubbing of nails, cap refill <3 seconds, Hair soft-distribution normal for age and gender. Skin integrity intact, skin turgor elastic, no tenting present.

What clinical data do you NOTICE that is RELEVANT and why is it clinically significant?

(Reduction of Risk Potential/Health Promotion and Maintenance)

RELEVANT VS Data:	Clinical Significance:	TREND:
RELEVANT Assessment Data:	Clinical Significance:	TREND:

1. INTERPRETING relevant clinical data, what is the primary problem? What primary health-related concept(s) does this problem represent? *(Management of Care/Physiologic Adaptation)*

Problem:	Pathophysiology of Problem in OWN Words:	Primary Concept(s):

2. *What nursing priority(ies) will guide your plan of care that determines how you decide to RESPOND?*
(Management of Care)

Nursing PRIORITY:		
PRIORITY Nursing Interventions:	Rationale:	Expected Outcome:

Medical Management: Admission Medication Orders

Care Provider Orders:	Mechanism of Action:	Expected Outcome:
Administer the following home medications: Atorvastatin 40 mg PO daily Metoprolol 50 mg PO BID Levothyroxine 112 mcg PO daily New order: Heparin 5000 units subq. BID	<ol style="list-style-type: none"> 1. "Reduces plasma cholesterol and lipoprotein levels by inhibiting HMG-CoA reductase and cholesterol synthesis in the liver and by increasing the number of LDL receptors on liver cells to enhance LDL uptake and breakdown." (Jones & Bartlett, 2021) 2. "Inhibits stimulation of beta receptor sites, located mainly in the heart, resulting in decreased cardiac excitability, cardiac output, and myocardial oxygen demand. Metoprolol also helps reduce blood pressure by decreasing renal release of renin." (Jones & Bartlett, 2021) 3. "Replaces endogenous thyroid hormone, which may exert its physiologic effects by controlling DNA transcription and protein synthesis." (Jones & Bartlett, 2021) 4. "Binds with antithrombin III, enhancing antithrombin III's inactivation of the coagulation enzymes thrombin and factors Xa and XIa. At low doses heparin inhibits factor Xa and prevents conversion of prothrombin to thrombin." (Jones & Bartlett, 2021) 	

Medication Administration

1. *Identify the "rights" of safe medication administration?*

2. Identify essential steps the nurse must implement to safely administer ORAL medications in practice?
(Management of Care)

Essential Steps to Be Safe in Practice:

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3. What essential teaching will the nurse reinforce about these medications? (Health Promotion and Maintenance)

Medications:	Patient Education:
<p>Atorvastatin 40 mg PO daily</p> <p>Metoprolol 50 mg PO BID</p> <p>Levothyroxine 112 mcg PO daily</p> <p>New order: Heparin 5000 units subq. BID</p>	<p>Atorvastatin:</p> <ul style="list-style-type: none"> – Not a substitute for a low-cholesterol diet; should be used adjunct to – Take the medication at the same time each day to maintain effects – Take a missed dose as soon as possible; if almost time for next dose, skip the missed dose – Do not double dose – Notify prescriber immediately if muscle pain, tenderness, or weakness occurs, especially if there is fatigue and fever with it – Monitor blood glucose closely since he has DM type 2 <p>Metoprolol:</p> <ul style="list-style-type: none"> – Instruct patient to take with food at the same time everyday. – Do not crush or chew tablets. – Once daily for E.R. tablets. If the patient is unable to swallow the E.R. tablets, you can open and sprinkle them over food. – Mixture must be swallowed within 60 minutes. – Diabetic patients should check blood glucose levels often during therapy. <p>Levothyroxine:</p> <ul style="list-style-type: none"> – This drug replaces the hormone usually produced by the thyroid, so he will probably have to take the drug for life – Take the drug at least 30 minutes before breakfast to increase the amount absorbed and prevents insomnia when taking at night – Take this with a full glass of water to avoid choking, gagging, the tablet sticking to the back of the throat, and developing heartburn after – Separate antacids and calcium or iron supplements by at least 4 hours from levothyroxine doses – This drug may take a few weeks to go into effect – Do not stop drug or change dosage unless instructed otherwise by provider – Report signs of hyperthyroidism such as chest pain, diarrhea, excessive sweating, fever, headache, heat intolerance, insomnia, irritability, leg cramps, nervousness, palpitations, weight loss, shortness of breath, tremors, and vomiting <p>Heparin:</p> <ul style="list-style-type: none"> – Heparin can not be taken orally – Avoid injuries that may cause bleeding. Use a soft bristles toothbrush and an electric razor – Do not take any NSAIDs such as aspirin or ibuprofen – Temporary hair loss may occur – Report any bloody stool, urine, etc. <p style="font-size: small;">Jones & Bartlett, 2021</p>

Evaluation: Two Hours Later...

Jerry’s respiratory rate has increased to 28 and his O2 sat has dropped to 88-90% on 4 liters n/c. Coarse crackles are present halfway up bilaterally. He states he has a hard time catching his breath at rest.

1. What data do you NOTICE as RELEVANT and why is it clinically significant?
(Reduction of Risk Potential/Health Promotion and Maintenance)

RELEVANT Data:	Clinical Significance:

2. *Has the status improved or not as expected to this point? Does your nursing priority or plan of care need to be modified in any way after this evaluation assessment? (Management of Care, Physiological Adaptation)*

Evaluation of Current Status:	Modifications to Current Plan of Care:

Medical Management: New Orders from Primary Care Provider

Care Provider Orders:	Rationale/Mechanism of Action:	Expected Outcome:
Furosemide 40 mg IV BID Place on high flow n/c if unable to maintain O2 sat >92% on 6 liters n/c	Furosemide stops the reabsorption of water and sodium in the loop of Henle in the kidneys. The kidneys excrete the sodium and water causing the body to urinate more. It also decreases the blood pressure by reducing intracellular and extracellular fluid. The high flow n/c is in place to increase O2 saturation in the client if the 6 liters of O2 isn't enough to keep the saturation above 92%.	

When assessing the peripheral IV site, you notice that the site appears moist, cool to the touch with fluid leaking at the insertion site when flushed with saline. The extension tubing is dangling with one piece of tape holding it to the patient is beginning to peel off.

What clinical data do you NOTICE that is RELEVANT and why is it clinically significant? (Reduction of Risk Potential/Health Promotion and Maintenance)

RELEVANT Data:	Clinical Significance:

Parenteral Medication Administration

1. *Identify the essential steps the nurse must implement to safely administer subcutaneous medications? (Management of Care)*

Essential Steps to Be Safe in Practice:

2. *Recognizing that the IV has infiltrated, identify the essential steps that the nurse must implement to start an IV?*
(Management of Care)

Essential Steps to Be Safe in Practice:

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3. *Identify the essential steps the nurse must implement to safely administer intravenous medications?*
(Management of Care)

Essential Steps to Be Safe in Practice:

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4. *What will the nurse teach the patient about these medications? Why is he receiving them?*
(Health Promotion and Maintenance)

Medications:	Patient Education:
Furosemide 40 mg IV BID	

Use Reflection to THINK Like a Nurse

What did you learn that you can apply to future patients you care for? Reflect on your current strengths and weaknesses this case study identified. What is your plan to make any weakness a future strength?

What Did You Learn?	What did you do well in this case study?
What could have been done better?	What is your plan to make any weakness a future strength?

References:

Jones & Bartlett Learning. (2020). 2021 nurse's drug handbook (20th ed.). Jones & Bartlett Learning.