

N431 Care Plan 4

Lakeview College of Nursing

Ruvarashe Mutopo

Demographics (3 points)

Date of Admission 11/16/2020	Patient Initials T.B.	Age 64 years old	Gender Male
Race/Ethnicity White	Occupation Unemployed - Disabled	Marital Status Divorced	Allergies codeine
Code Status Full Code	Height 180 cm	Weight 109.6 kg	

Medical History (5 Points)

Past Medical History: Degenerative Disc disease, cervical radiculopathy, and myofascial muscle pain. (No diagnosis dates)

Past Surgical History: Triple bypass of the heart

Family History: Father: Diabetes and no other family history documented

Social History (tobacco/alcohol/drugs): Former tobacco use of 1 pack per day for 35 years, denies alcohol use and states use of marijuana daily for the past year.

Assistive Devices: Glasses to read, but no other devices to help mobility.

Living Situation: Lives at home alone

Education Level: High school education

Admission Assessment

Chief Complaint (2 points): Lower back pain

History of present Illness (10 points): Onset: Client presented to the emergency department on 11/16/12020 with lower back pain that gradually became severe, he rated his pain a 7/10.

Location: The client states his pain is felt in his lower back

Duration: The pain has bas gradually increased over 1.5 months

Characteristics: The client describes the pain as sharp and constant.

Associating: He reports that movement makes it worse, and numbness in his fingers and groin pain accompany his back pain.

Relieving and Treatment: He denies any relieving factors and did not seek out any treatment prior.

Primary Diagnosis

Primary Diagnosis on Admission (2 points): Osteomyelitis of L3 and L4

Secondary Diagnosis (if applicable):

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

Osteomyelitis is a bone infection that causes inflammation, necrosis, and the formation of a new bone. Osteomyelitis is mostly caused by bacteria but can also be caused by fungi (Vyas, 2020). There are three types of osteomyelitis: hematogenous, contiguous-focus, and osteomyelitis with vascular insufficiency. Hematogenous is due to a bloodborne spread of infection. Contiguous-focus is from contamination during bone surgery, an open fracture, or traumatic injury. Osteomyelitis with vascular insufficiency is seen mostly with diabetes and peripheral vascular disease and mainly affects the feet. Individuals who are more at risk for osteomyelitis include older adults, immunosuppressed, those with chronic illnesses, receiving long-term corticosteroid therapy, and using IV drugs (Hinkle & Cheever, 2017). In older adults like my client, osteomyelitis mostly involves the vertebrae, hips, and feet (Vyas, 2020).

Osteomyelitis signs and symptoms include bone pain, diaphoresis, fever and chills, discomfort, malaise, inflammation, redness, warmth, open wound with pus, and pain at the site that is constant and worse with movement (Vyas, 2020). These symptoms are not specific with age, and the skin over the infected site is usually the only affected area (Hinkle & Cheever,

2017). My client's chief complaint was severe back pain. He described it as a constant and sharp pain that developed over 1.5 months, which was significantly worse with movement.

Diagnostic testing and labs include blood cultures, bone biopsies, scans, x-ray, blood tests, MRIs, and need aspiration of the area (Vyas, 2020). X-ray findings will show tissue edema. Bone scans and MRIs are early definitive diagnosis. Blood studies may show low white blood cells and an elevated ESR. The blood culture may come back positive with a specific microorganism, which helps prescribe a specific antibiotic for treatment (Hinkle & Cheever, 2017). My client's blood culture came back positive for streptococcus parasanguinis, which will help them figure out a treatment plan for him. He has a follow-up appointment for a bone biopsy after discharge; however, giving him an antibiotic before a biopsy does not negatively impact pathogen recovery (Marschall et al., 2011).

The treatment goals of osteomyelitis are to reduce the damage of the bone and surrounding tissue by getting rid of the infection (Vyas, 2020). The provider may start with supportive measures like hydration, high vitamin and protein diet, and anemia correction. Intravenous antibiotic therapy will be preferred over oral due to bone infections, generally more difficult to penetrate than soft tissue. IV therapy will be long term and will continue for up to 3 to 6 weeks (Hinkle & Cheever, 2017). If antibiotic therapy fails, surgery may be needed to remove dead bone tissue and metal plates near the infection. After the open space remaining is filled with a bone graft or packing material, which promotes resolution of the infection (Vyas, 2020)

Pathophysiology References (2) (APA):

Hinkle, J. L., & Cheever, K. H. (2017). Brunner & Suddarth's textbook of medical-surgical nursing (14th ed.). LWW.

Marschall, J., Bhavan, K. P., Olsen, M. A., Fraser, V. J., Wright, N. M., & Warren, D. K. (2011).

The impact of prebiopsy antibiotics on pathogen recovery in hematogenous vertebral osteomyelitis. *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America*, 52(7), 867–872. <https://doi.org/10.1093/cid/cir062>

Vyas, J. (2020, March 4). Osteomyelitis. <https://medlineplus.gov/ency/article/000437.htm>

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	4 – 6.6	4.97	4.27	
Hgb	14 - 18	10.5	8.7	Due to antibiotics, aspirin, and other IV Fluids (Kee, 2017)
Hct	42 – 54	32.9	27.7	Due to anemia and chronic conditions (Kee, 2017)
Platelets	150 - 450	332	303	
WBC	4.5 – 10.8	6.5	4.8	
Neutrophils	1.5 – 7.6	3.8	2.0	
Lymphocytes	1 - 6	2	2	
Monocytes	4 - 6	0.99	0.64	Due to an infection (Kee, 2017)
Eosinophils	0.20 – 0.8	0.03	0.13	Due to stress and inflammation (Kee, 2017)
Bands	*Not assessed			

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-	134 -144	139	143	
K+	3.5 – 5.2	4	4.1	
Cl-	96 – 106	96	97	
CO2	20 -29	24	25.6	
Glucose	65 – 99	166	102	Due to infection and stress (Kee, 2017)
BUN	8 – 27	12	11	
Creatinine	0.76 – 1.17	0.76	0.78	
Albumin	3.5 – 5.0	3.7		
Calcium	8.7 – 10.2	9.8	8.9	
Mag	1.6 – 2.3	1.9	1.8	
Phosphate	*			
Bilirubin	0 – 1.2	0.6		
Alk Phos	*			
AST	5 -40	71		Due to antibiotics, vitamins, and narcotics (Kee, 2017)
ALT	7 - 56	78		Due to antibiotics, antihypertensives, and narcotics (Kee, 2017)
Amylase	*			
Lipase	*			
Lactic Acid	*			

Troponin	*			
CK-MB	*			
Total CK	*			

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	1.1	1.1	
PT	11 -13.5	12.4	11.6	
PTT	*			
D-Dimer	*			
BNP	*			
HDL	*			
LDL	*			
Cholesterol	*			
Triglycerides	*			
Hgb A1c	*			
TSH	*			

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	*			
pH	*			
Specific Gravity	*			

Glucose	*			
Protein	*			
Ketones	*			
WBC	*			
RBC	*			
Leukoesterase	*			

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	*			
PaO2	*			
PaCO2	*			
HCO3	*			
SaO2	*			

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	*			
Blood Culture	Negative	Positive		Gram + bacteria: streptococcus parasanguinis
Sputum Culture	*			
Stool Culture	*			

Lab Correlations Reference (APA):

Kee, J. L. (2017). *Handbook of laboratory and diagnostic tests with nursing implications* (8th ed.). Pearson Education, Inc.

Diagnostic Imaging

All Other Diagnostic Tests (5 points): *No diagnostic testing was done during my shift.

Diagnostic Test Correlation (5 points): *

Diagnostic Test Reference (APA): *

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

Home Medications (5 required)

Brand/Generic	Nesina/ alogliptin	Bayer/ aspirin	Lipitor/ atorvastatin	Zestril/ lisinopril	Lopressor/ metoprolol
Dose	25 mg	81 mg	20 mg	5 mg	100 mg
Frequency	Daily	Daily	Daily	Daily	Daily
Route	PO	PO	PO	PO	PO
Classification	Antidiabetic	NSAID	Antihyperlipidemic	Antihypertensive	Antianginal and antihypertensive
Mechanism of Action	Inhibits enzymes that slow the hormones that released in the intestines in response to a meal.	Inhibits platelet aggregation	Reduces plasma cholesterol and lipoprotein levels	Reduces blood pressure by inhibiting conversion of angiotensin 1 to angiotensin 2	Beta-blocker and causes decreased cardiac excitability and output.
Reason Client Taking	Control blood glucose level	Reduce risk of transient ischemic attack	To control lipid levels	Hypertension	Hypertension
Contraindications (2)	Diabetic ketoacidosis and	Active bleeding or GI ulcer	Active hepatic disease and	Hereditary or idiopathic	Acute heart failure and

	type 1 diabetes		hypersensitivity to atorvastatin	angioedema and concurrent aliskiren use in clients with diabetes or renal impairment	cardiogenic shock
Side Effects/Adverse Reactions (2)	Rash and joint pain	Angioedema and diarrhea	Muscle pain and pneumonia	Syncope and hypotension	Blurred vision and decreased libido
Nursing Considerations (2)	Assess renal function before starting medication. Check blood sugar level to determine effectiveness.	Be aware of tinnitus, because that means aspirin level has exceed max dosage. Do not crush medication unless otherwise stated.	Use in caution with clients who drink alcohol excessively. Expect lipid levels 2 to 4 weeks after therapy starts to help adjust dosage.	Monitor for dehydration and notify prescribe if client has a persistent nonproductive cough	Assess ECG because they may be at risk for AV block. Taper dosage over one to two weeks when drug is discontinued.
Key Nursing Assessment(s)/Lab(s) Prior to Administration	Renal and liver function and Hgb A1C	Aspirin blood levels, current or recent bleeding	Lipid levels, liver function, blood-alcohol and blood glucose if diabetic	Monitor Renal function, blood glucose, and potassium	Monitor ECG, coldness, pain and color of skin
Client Teaching needs (2)	Follow exercise and diet program during therapy. Teach how to monitor blood sugar levels and when to notify provider.	Take with food because it can cause GI upset. Don't take aspirin if it has a strong vinegar-like odor	Purpose is to be used with a low cholesterol diet, not to replace. Take the medication at the same time each day	They may need lifelong therapy because lisinopril doesn't cure just helps to control. Take lisinopril at the same time every day.	Do not chew or crush medication. Notify prescriber if pulse is less than 60 beats per minute.

Hospital Medications (5 required)

Brand/Generic	Calciferol/ cholecalciferol	Gralise/ gabapentin	Vancocin/ vancomycin	Nitrostat/ nitroglycerine	Arymo ER/ morphine
Dose	2000 Units	100 mg	125 mg	0.4 mg	4 mg
Frequency	Daily	Daily	Twice Daily	PRN	PRN

Route	PO	PO	IV	Sublingual	IV
Classification	Fat soluble vitamins	Anticonvulsant	Antibiotic	Antianginal and vasodilator	Opioid analgesic
Mechanism of Action	Made in the skin and increases the uptake of calcium in the intestines	Inhibits responses to painful stimuli	Inhibits the formation of bacterial cell wall	Increases cGMP level and relaxes vascular smooth muscle causing vasodilation.	Reduces nociceptive transmission in PNS and CNS
Reason Client Taking	Malabsorption of vitamin D and prevent bone loss	Nerve pain	Treat infection	Chest pain	Pain
Contraindications (2)	Kidney stones and excessive amounts of calcium in the blood	Hypersensitivity to gabapentin and depression	Corn and vancomycin hypersensitivity	Acute MI and angle-closure glaucoma	Bronchial asthma and respiratory depression
Side Effects/Adverse Reactions (2)	Shortness of breath and constipation	Seizures and apnea	Hypotension and C. diff	Arrhythmias and dysuria	Coma and bradycardia
Nursing Considerations (2)	Follow assigned diet and be able to recognize symptoms of hypercalcemia	Can be mixed with applesauce, fruit juice, pudding or water. Give drug at least 2 hours after an antacid	Not a prophylaxis drug. Infuse over time, rapid infusion can lead to hypotension or red man's syndrome	Place sublingual tablets under the client's tongue and make sure it dissolves completely. Check vitals before every dosage adjustment and during therapy.	E.R. forms are not interchangeable. Be aware that morphine can lead to abuse, addiction, and misuse
Key Nursing Assessment(s)/Lab(s) Prior to Administration	Blood levels to monitor levels like calcium and magnesium	Assess renal function, blood levels, and mental health.	Monitor serum vancomycin levels, hearing, CBC, BUN, and creatinine	Assess vitals, fall risk, level of consciousness, fluid intake/output.	Monitor respiratory status, history of abuse, and for new reactions.
Client Teaching needs (2)	It can be taken with or without food. Certain medications like mineral oil can decrease absorption of	Do not stop the drugs abruptly. Urge caregivers to watch for suicidal tendencies.	Use calibrated measuring device for administration. Complete full therapy treatment	Teach them how to recognize signs and symptoms of angina pectoris. Advise client to carry sublingual powder or tablets in their original	Take exactly as prescribed and not to change dosage. Change positions slowly to minimize the orthostatic hypotension.

	vitamin D			bottle so that it will not be affected by body heat.	
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Medications Reference (APA):

2020 Nurse's Drug Handbook. 19th ed., Jones & Bartlett Learning, 2020.

Assessment

Physical Exam (18 points)

GENERAL (1 point): Alertness: Orientation: Distress: Overall appearance:	Client is awake, alert, and oriented x3 He does not appear in distress; speech is clear and appears stated age.
INTEGUMENTARY (2 points): Skin color: Character: Temperature: Turgor: Rashes: Bruises: Wounds: Braden Score: Drains present: Y ☐ N ☒ Type:	Skin color appropriate for ethnicity Dry and elastic Warm +2 No rashes, drains, wounds, bruises or lesions. 21
HEENT (1 point): Head/Neck: Ears: Eyes: Nose: Teeth:	Head and neck are symmetrical No changes in hearing or vision Nares are patent Most lips, teeth intact and no decay Overall, no drainage or abnormalities from eyes, ears, nose, and throat.
CARDIOVASCULAR (2 points): Heart sounds: S1, S2, S3, S4, murmur etc. Cardiac rhythm (if applicable): Peripheral Pulses: Capillary refill:	Clear heart sounds, S1 and S2 present, no clicks, murmurs, or gallops auscultated Normal sinus rhythm Pulses are +2 in carotid, brachial, femoral, popliteal, posterior tibialis, and dorsalis pedis

Neck Vein Distention: Y ☐ N ☒ Edema Y ☐ N ☒ Location of Edema:	bilaterally Less than 3 seconds
RESPIRATORY (2 points): Accessory muscle use: Y ☐ N ☒ Breath Sounds: Location, character	Lung sounds even and unlabored, clear in all lobes, no wheezes or cough, and the client is on room air.
GASTROINTESTINAL (2 points): Diet at home: Current Diet Height: Weight: Auscultation Bowel sounds: Last BM: Palpation: Pain, Mass etc.: Inspection: Distention: Incisions: Scars: Drains: Wounds: Ostomy: Y ☐ N ☒ Nasogastric: Y ☐ N ☒ Size: Feeding tubes/PEG tube Y ☐ N ☒ Type:	Regular diet Regular diet 180 cm 109.6 kg Audible bowel sounds in all 4 quadrants 11/15/2020 No palpable mass or pain, abdomen is not distended, soft abdomen, no incisions, scars, drains or wounds.
GENITOURINARY (2 Points): Color: Character: Quantity of urine: Pain with urination: Y ☐ N ☒ Dialysis: Y ☐ N ☒ Inspection of genitals: Catheter: Y ☐ N ☒ Type: Size:	Yellow Clear and odorless 900 mL of urine Normal, no swelling, drainage, or redness
MUSCULOSKELETAL (2 points): Neurovascular status: ROM: Supportive devices: Strength: ADL Assistance: Y ☐ N ☒ Fall Risk: Y ☒ N ☐ Fall Score:	Numbness and tingling present in fingers in associating with pain. Moves all extremities equally, equal strength with a 5/5 bilaterally in all extremities, present flexion, extension and hand grip in both extremities, accompanied by some pain. Client does not use any support devices.

Activity/Mobility Status: Independent (up ad lib) ☒ Needs assistance with equipment ☐ Needs support to stand and walk ☐	55
NEUROLOGICAL (2 points): MAEW: Y ☒ N ☐ PERLA: Y ☒ N ☐ Strength Equal: Y ☒ N ☐ if no - Legs ☐ Arms ☐ Both ☐ Orientation: Mental Status: Speech: Sensory: LOC:	Alert and oriented to person, place, and time Mental status appropriate for age and situation Clear speech patterns No sensory deficits present No loss of consciousness
PSYCHOSOCIAL/CULTURAL (2 points): Coping method(s): Developmental level: Religion & what it means to pt.: Personal/Family Data (Think about home environment, family structure, and available family support):	Client will rely on daughters Matured and fully developed Nondenominational Lives at home alone, and his children come to check on him frequently.

Vital Signs, 2 sets (5 points)

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0045	96	121/82	16	36.7	96
0737	95	135/87	20	36.9	95

Vital Sign Trends: The client's vitals were stable throughout the shift.

Pain Assessment, 2 sets (2 points)

Time	Scale	Location	Severity	Characteristics	Interventions
0218	Numeric 0-10	N/A	2/10	N/A	Sleep was promoted and clustered care

0830	Numeric 0-10	Back	5/10	Constant and sharp pain	Pain medications were administered
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IV Assessment (2 Points)

IV Assessment	Fluid Type/Rate or Saline Lock
Size of IV: Location of IV: Date on IV: Patency of IV: Signs of erythema, drainage, etc.: IV dressing assessment:	5 French Left arm 11/18/2020 Flushes well and blood return present No signs of erythema, drainage, phlebitis, or infiltration. The dressing was clean, dry, and intact.

Intake and Output (2 points)

Intake (in mL)	Output (in mL)
360 mL of juice	300 mL of urine
360 mL of water	400 mL of urine
500 mL of water	450 mL of urine
Total = 1220 mL	Total = 1150 mL

Nursing Care

Summary of Care (2 points)

Overview of care: The client was comfortable due to a focus of pain management and antibiotic regimen.

Procedures/testing done: There were no procedures or testing done during my shift.

Complaints/Issues: The client's only complaint was his pain.

Vital signs (stable/unstable): His vital signs were stable throughout the shift.

Tolerating diet, activity, etc.: the client was tolerating the regular diet bed alarm, chair alarm, and all other activity restrictions.

Physician notifications: During the shift, the physician was not notified of anything.

Future plans for patient: The main plan is discharge for the client and home health.

Discharge Planning (2 points)

Discharge location: The client is going home with is daughters.

Home health needs (if applicable): The client's home health needs are therapy and exercises for his osteomyelitis.

Equipment needs (if applicable): LSO back brace

Follow up plan: The client has followed up appointments for a bone biopsy and with a neurosurgeon.

Education needs: He needs to be educated about the back brace, different exercises, pain management, and IV antibiotics infusion therapy center.

Nursing Diagnosis (15 points)

Must be NANDA approved nursing diagnosis and listed in order of priority

Nursing Diagnosis	Rational	Intervention (2 per dx)	Evaluation
Include full nursing diagnosis with "related to" and "as evidenced by" components	Explain why the nursing diagnosis was chosen		- How did the patient/family respond to the nurse's actions? - Client response, status of goals and outcomes, modifications to plan.
1. Acute Pain related to osteomyelitis as evidenced by client stating pain is sharp and constant and rating it a	This was the client's chief complaint and reason for admission to the emergency department.	1.Administer 4 mg of morphine as needed. 2.Assess pain, and effectiveness of pain medications after administration.	Goal was partially met, his pain decreased but it was at a 5/10

7/10.		3. Provide nonpharmacologic pain management like guided imagery or distractions.	
2. Activity intolerance related to the client's lower back pain as evidenced by client stating there is more pain with movement.	His pain is worse with movement, so it could keep him from ambulating and can cause further complications.	1. Instruct client to take a longer time with more rest or assistance for activities. 2. Set goals for activity with client and making sure to gradually increase the activity to prevent overexertion.	Goal met because client tolerated movement and did it at his own pace even though it took him longer.
3. Risk for systemic infection/sepsis related to osteomyelitis as evidenced by inadequate defenses and chronic diseases.	Sepsis is mostly caused by bacterial infection and its systemic response to an infection.	1. Monitor vital signs, especially fever. 2. Infection control with aseptic technique after hand hygiene.	Goal met because client remained free from further infections and his vital signs remained stable throughout the shift.
4. Risk for impaired skin integrity related to osteomyelitis as evidenced by greater pain with movement.	He is in pain with movement, so staying in one place can cause pressure sores.	1. Encourage frequent ambulation and change in positions. 2. Encourage adequate nutrition and hydration. 3. Educate client about skin integrity and what causes it to be impaired.	Client understood the risk factors of impaired skin integrity and tolerated ambulation and diet.

Other References (APA):

Swearingen, P. L., & Wright, J. (2018). *All-in-One nursing care planning resource: Medical-surgical, pediatric, maternity, and psychiatric-mental health* (5th ed.). Mosby.

Concept Map (20 Points):

Subjective Data

Client states he has had a gradual onset of severe, constant sharp back pain over the past 1.5 months, movement makes it worse, and numbness in his fingers and groin pain accompany his back pain.

Nursing Diagnosis/Outcomes

Acute Pain related to osteomyelitis as evidenced by client stating pain is sharp and constant and rating it a 7/10.

Outcomes: Goal was partially met, his pain decreased but it was at a 5/10

Activity intolerance related to the client's lower back pain as evidenced by client stating there is more pain with movement.

Outcomes: Goal met because client tolerated movement and did it at his own pace even though it took him longer.

Risk for systemic infection/sepsis related to osteomyelitis as evidenced by inadequate defenses and chronic diseases.

Outcomes: Goal met because client remained free from further infections and his vital signs remained stable throughout the shift.

Risk for impaired skin integrity related to osteomyelitis as evidenced by greater pain with movement.

Outcomes: Client understood the risk factors of impaired skin integrity and tolerated ambulation and diet

Objective Data

The client had no diagnostic imaging done. His bacteria culture came back positive with Gram + bacteria: streptococcus parasanguinis. His labs, monocytes, glucose and eosinophils can indicate an infection and stress. Vital signs were stable.

Pulse: 95
BP: 135/ 87
RR: 20
Temp: 36. 9
O2: 95

Patient Information

Client presented to the emergency department on 11/16/12020 with lower back pain that gradually became severe, he rated his pain a 7/10.

PMH: Degenerative disc disease, cervical radiculopathy, and myofascial muscle pain

Nursing Interventions

1. Administer 4 mg of morphine as needed.
 2. Assess pain, and effectiveness of pain medications after administration.
 3. Provide nonpharmacologic pain management like guided imagery or distractions
-
1. Instruct client to take a longer time with more rest or assistance for activities.
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 3. Educate client about skin integrity and what causes it to be impaired.

