

N311 Care Plan #1
Lakeview College of Nursing
Care Plan 1

Demographics (5 points)

Date of Admission 09/16/2022	Client Initials R.C.	Age 59	Gender Male
Race/Ethnicity Caucasian	Occupation Retired janitor	Marital Status Widowed	Allergies Lisinopril, unknown reaction; Prednisone, unknown reaction
Code Status Full Code	Height 188.0 cm	Weight 150.0 kg	

Medical History (5 Points)

Past Medical History: Hypertension (HTN), Congestive Heart Failure (CHF), Skin Tear on Right Lower Extremity, Fractured Left Medial Malleolus, Deep Vein Thrombosis (DVT) in Left Lower Extremity, Recurrent Urinary Tract Infections (UTIs), Benign Prostatic Hyperplasia (BPH).

Past Surgical History: Right Femur Repair (09/2019), Removal of Thrombus in Left Lower Extremity (09/2021).

Family History: No medical history in patient's parents or grandparents; Patient has no siblings.

Social History (tobacco/alcohol/drugs including frequency, quantity and duration of use):

Patient reported drinking "Coke and rum on special occasions, like holidays." Patient denied use of tobacco in both cigar/cigarette and smokeless forms. Patient denied use of any illicit or street drugs, including marijuana.

Admission Assessment

Chief Complaint (2 points): Dysuria, Left flank pain

History of Present Illness – OLD CARTS (10 points): On September 7th, 2022, a 59-year-old Caucasian male was admitted to Sarah Bush Lincoln Health Center with complaints of frequent, urgent, and painful urination, discomfort in the groin, and generalized pain in abdomen. All of

these symptoms began two days prior (09/05/2022) in the early morning upon the patient awakening. The pain occurs in the left flank from the seventh intercostal space to the hip, as well as in the groin. This pain is nonstop, though it worsens with urination. The patient described the pain as “itchy burning in my groin, and my belly burns when I go to the restroom” and rated the pain a 6/10. The patient finds no relieving factors aside from waiting after urination for the pain to lessen in severity, and he has not sought treatment until his visit to the hospital.

Primary Diagnosis

Primary Diagnosis on Admission (3 points): Acute pyelonephritis of left kidney, nephrotic syndrome

Secondary Diagnosis (if applicable): Urethritis

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

Pyelonephritis is an infection of the kidney that occurs in the renal pelvis and interstitium. It occurs either acutely or chronically and is typically the result of a bacteria-related urinary tract infection (UTIs). In the United States alone, more than 250,000 patients are diagnosed with pyelonephritis every year, and up to 200,000 of these are hospitalized with the condition. Because women, especially young women, are particularly vulnerable to urinary tract infections, pyelonephritis occurs more in women than in men. However, men who have enlargement of the prostate are more prone to urethral urinary retention, which increases the rate of pyelonephritis (Capriotti, 2020).

The most common indirect causes for pyelonephritis include any form of obstruction in the abdomen or urinary tract, such as benign prostatic hyperplasia in men or renal stones in both sexes (Venkatesh & Hanumegowda, 2017). As in the case of this patient, the most common

pathogenic cause is bacteria-related, specifically *Escherichia coli* (*E. coli*). The retained urine in the urinary tract acts as a reservoir and medium for the bacteria to multiply within before spreading upward towards the kidneys. As the pathogen infects the kidney, it can lead to scarring and deformities due to inflammation, which in turn encourages further infection as more space is created for urine to be retained, causing recurrent UTIs as exemplified in this patient (Capriotti, 2020).

This condition commonly presents with what is known as a “classic triad” of symptoms: fever, flank pain, and dysuria (Venkatesh & Hanumegowda, 2017). In order to diagnose this condition, a urinalysis is first ordered to determine whether there is an infection in the urine. With positive results, such as an elevated WBC value, a urine culture may be ordered to rule out specific pathogens, which in this case yielded *E. coli* as a result. Even further, to determine that the infection has lead to pyelonephritis, and to determine the condition’s acuity, a computed tomography (CT) exam may be ordered without contrast (Capriotti, 2020).

Treatment of this condition is typically antibiotic therapy, and the type of antibiotics selected depends on the pathogen responsible for infection. Additionally, antipyretics and analgesic medications may be administered to aid with symptoms of fever and pain until the infection has passed. Increased intake of water is also encouraged to replace fluid loss associated with inflammation, as well as to prevent the formation of conditions in the urinary tract that may favor the growth of pathogenic organisms. If the infection is recurrent and diagnostic imaging has determined the cause to be an obstruction, surgical intervention may be required to alleviate the obstruction (Capriotti, 2020).

Pathophysiology References (2) (APA):

Capriotti, T. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F.A. Davis Company.

Venkatesh, L., & Hanumegowda, R. K. (2017). Acute pyelonephritis - Correlation of clinical parameter with radiological imaging abnormalities. *Journal of clinical and diagnostic research*, 11(6), 15-18. <https://doi.org/10.7860/JCDR/2017/27247.10033>

Laboratory Data (20 points)

If laboratory data is unavailable, values will be assigned by the clinical instructor

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 (x10 ⁶ /μL)	4.5 – 5.5	N/A	4.6	N/A
Hgb (g/dL)	13.0 – 18.0	N/A	14.0	N/A
Hct (%)	45.0 – 52.0	N/A	50.0	N/A
Platelets (x10 ³ /μL)	150 – 450	N/A	441	N/A
WBC (x10 ³ /μL)	4.0 – 10.0	N/A	9.0	N/A
Neutrophils (%)	40 – 80	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Lymphocytes (%)	20 – 40	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Monocytes (%)	2 – 10	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Eosinophils (%)	1 – 7	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Bands (%)	0 - 10	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.

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
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Na ⁺ (mEq/L)	135 – 145	N/A	138	N/A
K ⁺ (mEq/L)	3.5 – 5.2	N/A	3.5	N/A
Cl ⁻ (mEq/L)	98 – 107	N/A	98	N/A
CO ₂ (mEq/L)	22 – 29	N/A	29	N/A
Glucose (mg/dL)	70 – 99	N/A	98	N/A
BUN (mg/dL)	5 – 20	N/A	24	“An elevated BUN can occur when there is a decrease in the GFR, which leads to accumulation of nitrogenous waste products in the blood” (Capriotti, 2020, p. 528). This can be seen resulting from a urinary tract infection, as in the case of pyelonephritis.
Creatinine (mg/dL)	0.5 – 1.5	N/A	0.88	N/A
Albumin (g/dL)	3.5 – 4.5	N/A	2.9	Decreased albumin values are indicative of damage to the kidneys, which may result from a urinary tract infection (Capriotti, 2020).
Calcium (mg/dL)	8.7 – 10	N/A	8.7	N/A
Mag (mEq/L)	1.5 – 2.5	N/A	1.8	N/A
Phosphate (mg/dL)	2.5 – 4.5	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Bilirubin (mg/dL)	(0.3 – 1.0)	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Alk Phos (units/L)	34 – 104	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.

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	Clear to slightly hazy, Yellow	N/A	Hazy, Yellow	Urine is hazy due to presence of WBC in urine as a result of the body responding to infection by <i>E.</i>

	to amber			<i>coli</i> (Capriotti, 2020).
pH	5.0 – 9.0	N/A	7.0	N/A
Specific Gravity	1.001 – 1.030	N/A	1.030	N/A
Glucose	Negative	N/A	Negative	N/A
Protein	Negative or trace	N/A	Negative	N/A
Ketones	Negative	N/A	Negative	N/A
WBC (per hpf)	0 – 5	N/A	21	WBC lab value is elevated due to the presence of <i>E. coli</i> in the urinary tract and the body's response fighting the infection (Capriotti, 2020).
RBC (per hpf)	0 – 5	N/A	0	N/A
Leukoesterase	Negative	N/A	N/A	N/A

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	N/A	Positive for <i>Escherichia coli</i> (<i>E. coli</i>)	“The most common bacteria that cause acute pyelonephritis is uropathogenic <i>Escherichia coli</i> ” (Capriotti, 2020, p. 536).
Blood Culture	Negative	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Sputum Culture	Negative	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.
Stool Culture	Negative	N/A	N/A	Laboratory value was not tested for and/or not included in lab report.

Lab Correlations Reference (1) (APA):

Capriotti, T. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F.A. Davis Company.

Diagnostic Imaging: N/A

All Other Diagnostic Tests (10 points):

1. **Urine culture 09/07/2022** – Patient admitted to Sarah Bush Lincoln Health Center with complaints of frequent and painful urination, pain and itching in the genitals, and generalized pain in the left flank. This may be indicative of a urinary tract infection, so a urine culture was ordered. It yielded a positive finding for *E. coli*. This result is consistent with a UTI.
2. **CBC w/ differential 09/07/2022** – Patient admitted to Sarah Bush Lincoln Health Center with complaints of frequent and painful urination, pain and itching in the genitals, and generalized pain in the left flank. This may be indicative of a urinary tract infection, which can have an impact on the kidneys, so a complete blood count with differential was ordered, though the results from the differential were not included in lab reports. There were no pertinent findings.
3. **Complete metabolic profile 09/07/2022** – Patient admitted to Sarah Bush Lincoln Health Center with complaints of frequent and painful urination, pain and itching in the genitals, and generalized pain in the left flank. This may be indicative of a urinary tract infection, which can have an impact on the kidneys, so a complete metabolic profile was ordered. Pertinent findings from this diagnostic test include BUN 24 mg/dL and albumin 2.9 g/dL. These results are consistent with impaired functioning of the kidneys due to a UTI.

4. **Urinalysis 09/07/2022** – Patient admitted to Sarah Bush Lincoln Health Center with complaints of frequent and painful urination, pain and itching in the genitals, and generalized pain in the left flank. This may be indicative of a urinary tract infection, which can have an impact on the kidneys, so a urinalysis was ordered. Pertinent findings from this diagnostic test include the color and clarity being a hazy yellow and WBC 21 per hpf. These results are consistent with a UTI.

Diagnostic Imaging Reference (1) (APA): N/A

**Current Medications (10 points, 2 points per completed med)
*5 different medications must be completed***

Medications (5 required)

Brand/ Generic	Bayer/Aspirin	Lipitor/ Atorvastatin calcium	Celexa/ Citalopram hydrobromide	Protonix/ Pantoprazole sodium	Betapace/Sotalol hydrochloride
Dose	81 mg	40 mg	30 mg	40 mg	80 mg
Frequency	Daily	Daily	Daily	Daily	BID
Route	PO	PO	PO	PO	PO
Classification	Pharmacologic: Salicylate Therapeutic: NSAID (Jones & Bartlett Learning, 2021)	Pharmacologic: HMG-CoA reductase inhibitor Therapeutic: Antihyperlipidemic (Jones & Bartlett Learning, 2021)	Pharmacologic: SSRI Therapeutic: Antidepressant (Jones & Bartlett Learning, 2021)	Pharmacologic: Proton pump inhibitor Therapeutic: Antiulcer (Jones & Bartlett Learning, 2021)	Pharmacologic: Nonselective beta blocker Therapeutic: Class III antiarrhythmic (Jones & Bartlett Learning, 2021)
Mechanism of Action	Medication blocks cyclooxygenase activity, which in turn prevents prostaglandin synthesis. Prostaglandins are responsible for swelling and pain during the inflammatory response, so the severity of these symptoms is lessened by inhibiting prostaglandin synthesis.	Medication inhibits the synthesis of HMG-CoA reductase through the increased formation of LDL receptors on the liver. This lowers lipid levels in the blood plasma (Jones & Bartlett Learning, 2021).	Medication prevents the reuptake of synaptic serotonin, which increases levels of serotonin in the synaptic gap between nerves and may alleviate symptoms of depression (Jones & Bartlett Learning, 2021).	Medication decreases the secretion of gastric acids by inhibiting the proton pump system in gastric parietal cells. Typically, H ⁺ and Cl ⁻ are driven into the stomach in exchange for K ⁺ , but this medication prevents the exchange of H ⁺ and K ⁺ , preventing the formation of additional	Medication “combines class II and class III antiarrhythmic activity to increase sinus cycle length” (Jones & Bartlett Learning, 2021, p. 1230).

	Additionally, this medication interferes with thromboxane A2 production, which in turn depresses platelet aggregation (Jones & Bartlett Learning, 2021).			HCl (Jones & Bartlett Learning, 2021).	
Reason Client Taking	Alleviate angina, Reduce risk of MI	High cholesterol	Depression	GERD	A-Fib
Contraindications (2)	<ol style="list-style-type: none"> Disorders with coagulation Patients who are breastfeeding (Jones & Bartlett Learning, 2021).	<ol style="list-style-type: none"> Active hepatic disease Patients who are pregnant or may become pregnant (Jones & Bartlett Learning, 2021).	<ol style="list-style-type: none"> Pimozide therapy IV methylene blue or linezolid within 14 days (Jones & Bartlett Learning, 2021).	<ol style="list-style-type: none"> Rilpivirine-product therapy Substituted benzimidazoles (Jones & Bartlett Learning, 2021).	<ol style="list-style-type: none"> QT interval longer than 450 ms Bronchial asthma (Jones & Bartlett Learning, 2021).
Side Effects/ Adverse Reactions (2)	Increased risk of bleeding, Depression of CNS (Jones & Bartlett Learning, 2021).	Hypertension, CVA or MI (Jones & Bartlett Learning, 2021).	Hyponatremia, Prolonged QT interval (Jones & Bartlett Learning, 2021).	Reduction of antiviral effectiveness, <i>Clostridium difficile</i> infection (Jones & Bartlett Learning,	Hypotension, Bradycardia (Jones & Bartlett Learning, 2021).

				2021).	
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Medications Reference (1) (APA):

Jones & Bartlett Learning. (2021). *2022 nurse’s drug handbook* (21st ed.). Jones & Bartlett Learning.

Assessment

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

<p>GENERAL: Alertness: Orientation: Distress: Overall appearance:</p>	<p>Alertness and Orientation: Patient was alert and oriented x4 (name, date of birth, location, and current date). Distress: Patient was in no acute distress. Patient reported no concerns. Overall appearance: Patient was well-groomed with maintained hygiene and clean clothing.</p>
<p>INTEGUMENTARY: Skin color: Character: Temperature: Turgor: Rashes: Bruises: Wounds: . Braden Score: Drains present: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Type:</p>	<p>Skin color: Appropriate for ethnicity (Caucasian) Character: Dry, intact Temperature: Warm Turgor: Loose, elastic; No tenting present Rashes: None Bruises: Bilateral upper extremities Wounds: Skin tear present on lateral aspect of right lower extremity (along the calf); Wound is purulent, moist Braden Score: 13, moderate risk for pressure ulcers</p>
<p>HEENT: Head/Neck: Ears:</p>	<p>Head/Neck: Symmetrical; Trachea midline with no deviations; Thyroid nonpalpable with no nodules; Bilateral carotid pulses +2 with a regular</p>

<p>Eyes: Nose: Throat:</p>	<p>rate/rhythm; Assessed the following lymph nodes: Preauricular, posterior auricular, tonsillar, submandibular, submental, anterior cervical, posterior cervical, occipital, supraclavicular; All lymph nodes nonpalpable and nontender bilaterally Ears: No external deformities, lumps, or lesions bilaterally; Unable to assess internal ears Eyes: Bilateral PERRLA, bilateral EOMs intact; Eyelids pink and moist, free of lumps or lesions; Sclerae white and shiny with no excessive vascularity; Bilateral lashes and eyebrows thick, even; Conjunctivae pink and moist; No evidence of drainage or inflammation; Unable to assess visual acuity Nose: Septum midline; Turbinates pink and moist; No polyps; Frontal sinuses bilaterally nonpalpable and nontender; Maxillary sinuses bilaterally nonpalpable and nontender Throat: Upper dentures fitted to patient; Oral and pharyngeal mucosae pink and moist with no lesions; Hard palate intact, soft palate intact and rises evenly, uvula midline; Tonsils pink and moist, +1 with no exudate</p>
<p>CARDIOVASCULAR: Heart sounds: S1, S2, S3, S4, murmur etc. Cardiac rhythm (if applicable): Peripheral Pulses: Capillary refill: Neck Vein Distention: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Edema Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Location of Edema:</p>	<p>Heart sounds: S1 and S2 auscultated at APETM (Aortic, Pulmonic, Erb’s Point, Tricuspid, Mitral) locations. Cardiac rhythm: Normal with auscultation; Unable to assess via EKG Peripheral pulses: Bilateral +2 carotid, brachial, radial, and dorsalis pedis pulses; Regular rate/rhythm Capillary refill: 2 seconds</p>
<p>RESPIRATORY: Accessory muscle use: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Breath Sounds: Location, character</p>	<p>Location and Character: All breath sounds were clear and normal in all lobes anteriorly; Unable to assess breath sounds posteriorly</p>
<p>GASTROINTESTINAL: Diet at home: Current Diet: Height: Weight: Auscultation Bowel sounds: Last BM: Palpation: Pain, Mass etc.:</p>	<p>Diet at home: Regular diet, no restrictions Current diet: Regular diet, no restrictions Height: 188.0 cm Weight: 150.0 kg Bowel Sounds: Active bowel sounds in all four quadrants Last BM: Day of visit (09/29/2022) @ 0600 Palpation: Abdomen soft, nontender, no masses</p>

<p>Inspection: Distention: Incisions: Scars: Drains: Wounds: Ostomy: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Nasogastric: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Size: Feeding tubes/PEG tube Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Type:</p>	<p>noted Distention: No distention present Incisions: None present Scars: None present Drains: None present Wounds: None present</p>
<p>GENITOURINARY: Color: Character: Quantity of urine: Pain with urination: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Dialysis: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Inspection of genitals: Catheter: Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Type: Size:</p>	<p>Color: Unable to assess Character: Unable to assess Quantity: Unable to assess Pain with urination: Difficulty urinating, burning/itchy pain with urination, general pain in lower abdomen aggravated with urination Dialysis: N/A Inspection of genitals: Unable to assess Catheter: N/A</p>
<p>MUSCULOSKELETAL: Neurovascular status: ROM: Supportive devices: Strength: ADL Assistance: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Fall Risk: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Fall Score: Activity/Mobility Status: Independent (up ad lib) <input type="checkbox"/> Needs assistance with equipment <input checked="" type="checkbox"/> Needs support to stand and walk <input type="checkbox"/></p>	<p>Neurovascular status: Unable to assess ROM: Full Supportive devices: Wheelchair Strength: Unable to assess Fall Score: 50 (Low risk) Activity/Mobility Status: Unable to assess</p>
<p>NEUROLOGICAL: MAEW: Y <input type="checkbox"/> N <input type="checkbox"/> PERLA: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Strength Equal: Y <input type="checkbox"/> N <input type="checkbox"/> if no - Legs <input type="checkbox"/> Arms <input type="checkbox"/> Both <input type="checkbox"/> Orientation: Mental Status: Speech: Sensory: LOC:</p>	<p>MAEW: Unable to assess Strength Equal: Unable to assess Orientation: A&Ox4 Mental Status: Unimpaired Speech: Unclear, patient mumbles Sensory: Intact LOC: A&Ox4</p>
<p>PSYCHOSOCIAL/CULTURAL:</p>	<p>Coping method(s): Television, talking with</p>

Coping method(s): Developmental level: Religion & what it means to pt.: Personal/Family Data (Think about home environment, family structure, and available family support):	roommate, talking to children Developmental level: Appropriate for age Religion & what it means to pt.: Nonreligious Personal/Family Data: Widowed, children who live more than 30 minutes away
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Vital Signs, 1 set (5 points) – HIGHLIGHT ALL ABNORMAL VITAL SIGNS

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
0750	64 bpm Left radial	128/70 mm Hg RUE	12 resp/min	36.9°C temporal	95% 3L Nasal Cannula

Pain Assessment, 1 set (5 points)

Time	Scale	Location	Severity	Characteristics	Interventions
0815	Numeric	N/A	0 / 10	N/A	N/A

Intake and Output (2 points)

Intake (in mL)	Output (in mL)
480 mL 100% of food	Patient did not void, Patient did not have a BM

Nursing Diagnosis (15 points)

Must be NANDA approved nursing diagnosis

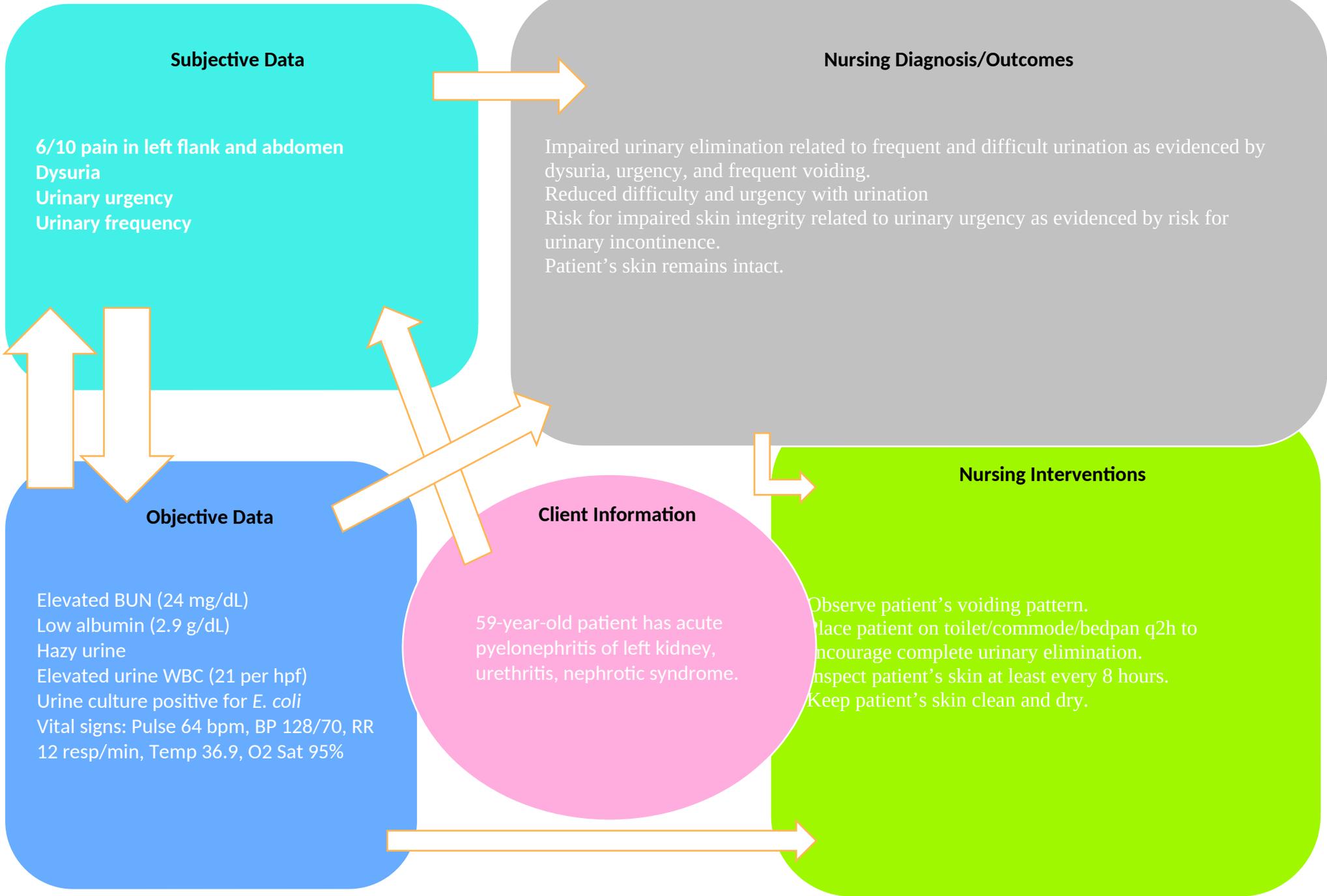
Nursing Diagnosis	Rationale	Interventions (2 per dx)	Outcome Goal (1 per dx)	Evaluation
<ul style="list-style-type: none"> Include full nursing diagnosis with “related to” and “as evidenced 	<ul style="list-style-type: none"> Explain why the nursing diagnosis was chosen 			<ul style="list-style-type: none"> How did the client/family respond to the nurse’s actions? Client response,

<p>by” components</p> <ul style="list-style-type: none"> Listed in order by priority – highest priority to lowest priority pertinent to this client 				<p>status of goals and outcomes, modifications to plan.</p>
<p>1. Impaired urinary elimination related to frequent and difficult urination as evidenced by dysuria, urgency, and frequent voiding.</p>	<p>This nursing diagnosis was chosen because the patient has reported frequent, urgent, and painful urination.</p>	<ol style="list-style-type: none"> Observe patient’s voiding pattern. Place patient on toilet/commode/bedpan q2h to encourage complete urinary elimination. 	<p>1. Reduced difficulty and urgency with urination</p>	<p>Patient responded affirmatively to the nurse’s actions. Patient is motivated to reduce urinary urgency by encouraging complete urinary elimination.</p>
<p>2. Risk for impaired skin integrity related to urinary urgency as evidenced by risk for urinary incontinence.</p>	<p>This nursing diagnosis was chosen because the patient reports urinary urgency, which may lead to skin breakdown if incontinence results.</p>	<ol style="list-style-type: none"> Inspect patient’s skin at least every 8 hours. Keep patient’s skin clean and dry. 	<p>1. Patient’s skin remains intact.</p>	<p>Patient responded affirmatively to the nurse’s actions. Patient is motivated to prevent skin breakdown by continued monitoring of the patient’s skin.</p>

Other References (APA):

Phelps, L. L. (2020). *Sparks and Taylor's nursing diagnosis reference manual* (11th ed.). Wolters Kluwer.

Concept Map (20 Points):



References

Capriotti, T. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F.A. Davis Company.

Jones & Bartlett Learning. (2021). *2022 nurse's drug handbook* (21st ed.). Jones & Bartlett Learning.

Phelps, L. L. (2020). *Sparks and Taylor's nursing diagnosis reference manual* (11th ed.). Wolters Kluwer.

Venkatesh, L., & Hanumegowda, R. K. (2017). Acute pyelonephritis - Correlation of clinical parameter with radiological imaging abnormalities. *Journal of clinical and diagnostic research*, 11(6), 15-18. <https://doi.org/10.7860/JCDR/2017/27247.10033>

