Student Name: Ryan Clagett
Medical Diagnosis/Disease: UTI

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation

Anatomy and Physiology

Normal Structures

-upper urinary system consists of two kidneys and two ureters
-lower urinary system consists of a urinary bladder and urethra
-urine formed in kidneys, drains through ureters, stored in the bladder, passes out of the body through the urethra
-kidneys regulate the volume and composition of extracellular fluid and excrete waste products
-kidneys control BP, make erythropoietin, activate VIT D, and regulate acid-base balance
-paired kidneys are bean-shaped organs located retroperitoneally on either side of the vertebral column at about T12 to L3
-each kidney is about 5 inches long
-R kidney is lower than the L kidney
-adrenal glands on top of kidneys
-capsule covers kidneys for protection
-parenchyma is actual kidney tissue
-the inner layer is the medulla
-minor and major calyces transport urine to the renal pelvis, draining into the bladder
-the nephron is the functional unit of the kidney; composed of the glomerulus, Bowman capsule, and a tubular system
-Functions: glomerulus (selective filtration), proximal tubule (reabsorption of 80% of electrolytes and water, glucose, amino acids, bicarbonate, and secretion of hydrogen ions and creatinine), Loop of Henle (concentration of filtrate, reabsorption of sodium and chlorine in ascending limb and water in descending loop), distal tubule (reabsorption of water [regulated by ADH] and bicarbonate, regulation of calcium and phosphate [parathyroid], regulation of sodium and potassium by aldosterone, and

Pathophysiology of Disease

-*E. coli* is the most common pathogen causing a UTI
-upper and lower UTIs according to location
-pyelonephritis implies inflammation of the renal parenchyma and collecting system
-cystitis is an inflammation of the bladder
-urethritis is an inflammation of the urethra
-urosepsis is a UTI that has spread systemically; it can be life-threatening
-uncomplicated UTIs occur in an otherwise healthy urinary tract
-complicated UTIs occur in a person w/ underlying disease or with a structural or functional problem (AKI, stones, CDK, transplant, DM, neurologic disease)
-the urinary tract above the urethra is normally sterile; bladder emptying and ureteral peristaltic activity aids in maintaining sterility and preventing UTIs
-urine pH is acidic (6.0-7.5)
-organisms that cause UTIs originate in the perineum, are introduced via the urethra
-most infections caused by gram-negative bacilli normally found in the GI tract
-regular exams, catheterization can allow for bacteria to enter into the bladder
-UTIs can also result from hematogenous transmission (blood-borne bacteria) that invades the kidneys, ureters, or bladder
-UTIs are the most common health care-associated infection due to CAUTIs (caused by *E. coli*) and lead to extended hospital stays, increased health care cost, and increased mortality

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs

-WBC
-Urinalysis
-Urine cx
-CBC
-CMP

Additional Diagnostics

-H&P
-Ultrasound
-CT
-Bladder scan

secretion of potassium, hydrogen ions, and ammonia), and the collecting duct (reabsorption of water [requires ADH])
-blood flow into the kidneys is 1200 mL/min, reaches the kidneys via the renal artery (glomerulus has a collection of up to 50 capillaries), and the renal vein empties into IVC
-normal GFR is 125 mL/min
-kidneys also have RBC production via erythropoietin, BP regulation via renin to angiotensin II
-ureters carry urine from the renal pelvis to the bladder via peristalsis
-the urinary bladder is a reservoir for urine, an elimination pathway for waste, and can stretch (capacity is 600-1000 mL)
-normal urine output is 1500 mL/day
-the urethra is a small tube that controls voiding and serves as a conduit for urine from the bladder to the outside world
-the urethrovesical unit (urethra, bladder, pelvic floor muscles) is what controls continence; impulses sent to the brain either encourage or discourage voiding

NCLEX II *(3)*: **Health Promotion and Maintenance**

Contributing Risk Factors	Signs and Symptoms
-Obesity -Urinary obstructions -HIV infection -Renal impairment -Catheters -Stones -Constipation -Pregnancy -Sexual activity (women) -Poor personal hygiene	-LUTS: -Dysuria -Hesitancy -Intermittency -Postvoid dribbling -Urinary retention -Incontinence -Nocturia -Urgency -Urinary frequency

NCLEX IV *(7)*: **Reduction of Risk**

Possible Therapeutic Procedures	Prevention of Complications
Non-surgical -N/A Surgical -Urinary stent	(What are some potential complications associated with this disease process) -Pyelonephritis (follow through abx regimen) -Urosepsis (follow through abx regimen; fluid resuscitation as appropriate; follow good pericare routine)

NCLEX IV *(6)*: **Pharmacological and Parenteral Therapies**

Anticipated Medication Management
-Abx (fluconazole, TMP/SMX, cephalexin) -IVF rehydration -Stool softeners

NCLEX IV *(5)*: **Basic Care and Comfort**

Non-Pharmacologic Care Measures
-TCDB -Good pericare -Oral hygiene BID -Fluid encouragement (>2000 mL/day) -q2h turns -Early ambulation -Physical and emotional rest

NCLEX III *(4)*: **Psychosocial/Holistic Care Needs**

What stressors might a patient with this diagnosis be experiencing?
-Hospitalization causes time away from work and home -If HAI, trust erosion of health care workers -Anxiety related to frequent UTIs and how to prevent future recurrences

Client/Family Education

List 3 potential teaching topics/areas

- Follow through the entire course of abx tx.
- Good pericare to prevent recurrent UTIs.
- Evacuating the bladder and bowel on a regular schedule.

NCLEX I *(1)*: Safe and Effective Care Environment

Multidisciplinary Team Involvement

(Which other disciplines do you expect to share in the care of this patient)

RN, hospitalist, nephrologist, infectious disease, PT/OT, chaplain, case management, urologist

Potential Patient Problems (Nursing Diagnoses)

To Be Completed Before the Simulation

Anticipated Patient Problem: **Impaired Urinary Elimination**

Clinical Reasoning: urinary frequency (>3 voids/hr), hematuria, nocturia, pain and burning on urination, urine dribbling postvoid, urinary retention, BUN >20, Cr >1.1

Goal 1: Pt will have a regular schedule for urinary elimination by the end of my care.

Goal 2: Pt will demonstrate appropriate pericare by the end of my care.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes.	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Evaluate results of urinalysis and urine culture q shift and PRN.	Administer prescribed antibiotic therapy as ordered and as scheduled.
Assess for the ability to void q1h and PRN.	Encourage a regular toileting schedule q1h.
Assess for the ability to perform pericare q shift.	Provide hand hygiene before meals and perform pericare PRN after voiding or bowel movements.
Assess serum electrolytes (especially Na and K) q shift and PRN.	Administer replacement electrolytes as ordered and PRN.
Assess renal function tests (BUN, Cr) q shift and PRN.	Collaborate with the provider to administer gentle IVF continuous infusion PRN.
Assess urine characteristics (clear or cloudy), color, and odor PRN after voiding or in catheter bag.	Collaborate with the laboratory and provider by providing a urine sample for urinalysis and culture and blood cx x2 PRN.

To Be Completed Before the Simulation

Anticipated Patient Problem: **Acute Pain: Pelvis**

Clinical Reasoning: pain >4/10 that is burning in the urethra postvoid, abd/pelvic guarding, facial grimacing, requesting analgesics around the clock

Goal 1: Pt will report a pain score <4/10 by the end of my care.

Goal 2: Pt will verbalize understanding of nonpharmacologic measures while taking analgesic by the end of my care.

Relevant Assessments (Prework) What assessments pertain to your patient's problem? Include timeframes.	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Assess pain characteristics (quality, intensity, location, onset, duration, relieving factors) q4h and PRN after analgesic administration.	Administer prescribed analgesics as ordered and as scheduled PRN for a verbalized pain score ≥1/10.
Assess the effectiveness of PRN analgesics (q45min-1hr for PO meds and q15min-30min after IVP meds) after administration.	Collaborate with the provider about the need for stronger or more potent analgesics PRN if ordered analgesics fail to relieve pain adequately.
Assess VS (BP, HR, RR) q4h.	Educate on the importance of following an adequate analgesic regimen PRN if JM does not readily verbalize pain scores.
Assess knowledge of nonpharmacological measures for pain control PRN in between PRN analgesic doses.	Teach distraction techniques (playing music, singing, massaging) and establish a calm environment PRN in between analgesic doses.
Assess for reports of burning with urination q shift and PRN.	Encourage dilution of urine via adequate fluid intake of ≥1000 mL of clear fluids q shift.
Assess knowledge of bladder irritant foods PRN.	Educate on avoiding caffeine, alcohol, citrus juices, chocolate, and spicy foods PRN.

To Be Completed During the Simulation:

Actual Patient Problem: Decreased Cardiac Output

Clinical Reasoning: SpO2 88% RA, hx of CHF, urine output <100 mL since admission, RR 24 on RA, crackles in all lung fields bilat, anterior, and posterior

Goal: JJ will have a SpO2 ≥90% by the end of my care. Met: ☐ Unmet: ☐

Goal: JJ will have a urine output ≥30 mL/hr during my time of care. Met: ☐ Unmet: ☐

Actual Patient Problem: **Impaired Urinary Elimination**

Clinical Reasoning: admitted w/ urosepsis, hx of CHF, urine output <100 mL since admission, Foley in place, BUN 21, urine is cloudy, slight amber, specific gravity 1.039, WBC 13

Goal: JJ will have a urine output ≥30 mL/hr during my time of care. Met: ☐ Unmet: ☐

Goal: JJ will demonstrate proper pericare and have regular baths BID during my time of care. Met: ☐ Unmet: ☐

Additional Patient Problems: Impaired Skin Integrity, Risk for Injury, Acute Pain: LLE, Risk for Shock, Acute Confusion, Ineffective Health Management, Anxiety

Below will be your notes, add more lines as needed. **Relevant Assessments:** Indicate pertinent assessment findings. **Multidisciplinary Team Intervention:** What interventions were done in response to your abnormal assessments? **Reassessment/Evaluation:** What was your patient's response to the intervention?

Patient Problem	Time	Relevant Assessments	Time	Multidisciplinary Team Intervention	Time	Reassessment/ Evaluation
Decreased Cardiac Output	5/7 at 0745	Use of accessory muscles to breathe, speaks a couple of words in between breaths, SpO2 88% RA, RR 24, hx of CHF	5/7 at 0747	Elevated HOB >30, applied O2 via NC at 2 L/min, encouraged to deep breathe through the nose	5/7 at 0749	"That's better," SpO2 90% NC at 2 L/min, RR 20
""	5/7 at 0833	UAP relays that "she's breathing harder," using accessory muscles, "I don't feel so good," restlessness, SpO2 89% NC at 2 L/min, RR 28, crackles heard in all lung fields bilat, anterior, and posterior upon auscultation, dependent pitting edema, fluid	5/7 at 0835	Increased NC O2 rate to 4 L/min, encourage to TCDB, maintained HOB >30	5/7 at 0837	Crackles were still heard in all lung fields bilat, anterior, and posterior upon auscultation, SpO2 94% NC at 4 L/min, RR 24, "I feel a little better"

		overload of 2360 mL, 100 mL of urine output since admission via Foley catheter, “I’m so cold,” coughed up sputum				
Ineffective Health Management	5/7 at 0840	Neighbor dropped off home medications, two prescriptions of the same med but different dosages, bottle w/ two kinds of pills in it	5/7 at 0842	Requested medication reconciliation w/ pharmacy, collaborated w/ the provider about updating medications orders for CHF	5/7 at 0845	Provider ordered Digoxin 0.25 mg now and daily, Furosemide 20 mg IVP now and again in 6 hrs if urine output is not ≥500 mL by then, CXR now, CBC and BMP now, Albuterol 0.5% solution by nebulizer q6h and q2h PRN respiratory difficulty
Decreased Cardiac Output / Impaired Urinary Elimination	5/7 at 0845	Admitted for urosepsis, BUN 21, urine is slightly amber and cloudy, Foley in place, fluid overload of 2360 mL, urine output of 100 mL since admission	5/7 at 1030	Administered furosemide 20 mg IVP, maintained Foley catheter	5/7 at 1400	Urine output of 680 mL via Foley catheter, Foley catheter in place and functioning
“”	“”	“”	“”	“”	5/7 at 2200	Urine output of 460 mL via Foley catheter, Foley catheter in place and functioning
Risk for Injury / Acute Pain: LLE	5/7 at 1300	Calling for help, found lying on L side on the ground by the bed	5/7 at 1330	Notified provider, CXR performed	5/7 at 1400	CXR revealed high intertrochanteric fx/basicervical, orders for Buck’s traction to LLE w/ 10 lbs of weight
Anxiety	5/7 at 1420	“Why can’t I have surgery,” Buck’s traction ordered, not a candidate for surgery due to CHF, “How long will I have to be in Buck’s traction”	5/7 at 1422	Educated by the provider that Buck’s traction will be in place for a few days and that the HOB will be flat, used therapeutic communication to ask about current feelings	5/7 at 1424	“I’m not okay,” “I’m really frightened, and I don’t understand what’s happening to me,” “I don’t understand what that contraption is going to do for me,” “That would really help” regarding talking w/ provider about any questions about Buck’s traction

Decreased Cardiac Output	5/7 at 2000	SpO2 94% NC at 4 L/min, RR 24	5/7 at 2001	Titrated O2 to 2 L/min	5/7 at 2002	SpO2 92% NC at 2 L/min, RR 22
Impaired Urinary Elimination	5/7 at 2005	Foley catheter in place, bath scheduled, "It'd be nice to freshen up before I go to bed"	5/7 at 2007	Performed bed bath, performed Foley care, changed linen	5/7 at 2010	Skin washed and clean, stage 2 pressure injury noted on the coccyx, linen clean and dry, Foley clean
Acute Pain: LLE	5/7 at 2005	Pain 2/10 in LLE, Buck's traction w/ 10 lbs of weight on LLE	5/7 at 2020	Maintained Buck's traction w/ 10 lbs of weight, maintained HOB flat, administered acetaminophen 325 mg PO, performed neuro check of LLE (all WNL, able to move toes, capillary refill <3 seconds, sensation intact)	5/7 at 2100	Pain 2/10 in LLE, Buck's traction w/ 10 lbs of weight still in place and functioning, HOB still flat
Impaired Skin Integrity	5/7 at 2010	Stage 2 pressure injury on the coccyx noted during bed bath	5/7 at 2100	Applied barrier ointment to the coccyx, collaborated w/ provider for wound care consult, implemented q2h turn schedule	5/7 at 2200	Barrier ointment is still on the coccyx, skin around stage 2 pressure injury is clean, dry, intact, and w/ slight erythema noted
Impaired Urinary Elimination	5/7 at 2058	WBC 13, admitted for urosepsis	5/7 at 2100	Administered levofloxacin 250 mg IVP	5/7 at 2105	Pending AM blood draw for WBC count
Decreased Cardiac Output / Acute Confusion	5/8 at 0000	"Where am I," restlessness, audible wheezing, SpO2 85% NC at 4 L/min, RR 32 and shallow	5/8 at 0010	Raised HOB to 15 degrees, titrated O2 to 6 L/min, respiratory therapist administered albuterol 0.5% solution in 3 mL NS via nebulizer, collaborated w/ provider for new orders	5/8 at 0015	Provider ordered STAT ABGs, blood cx x2, CBC w/ diff, activate a protein-C, urinalysis (all pending due to simulation end), and to change LR continuous infusion for KVO to NS at 150 mL/hr continuously, simulation ended w/o providing updated VS
Risk for Shock / Acute Confusion	5/8 at 0345	Presents at the early stages of distributive shock, restlessness, metabolic acidosis: pH 7.28, PaCO2 35, HCO3 20	5/8 at 0347	Discontinued LR infusion at KVO and started continuous infusion of NS at 150 mL/hr, provider notified of ABGs and risk for shock	5/8 at 0350	Pending the arrival of the provider to the bedside, the simulation ends

ATI Virtual Clinical Questions and Reflection:

1) Identify two members of the healthcare team collaborating in the care of this patient:
    a. Registered Nurse
    b. Respiratory Therapist
2) What were some steps the nursing team demonstrated that promoted patient safety?
    a. Requesting for medication reconciliation after the neighbor brought in JJ's home medications.
    b. Maintaining Buck's traction during the bed bath.
    c. Notifying the provider quickly of JJ's declining status r/t SpO2, acute confusion, and risk for shock.
3) Do you feel the nurse and medical team utilized therapeutic communication techniques when interacting with individuals, families, and health team members of all cultural backgrounds?
    a. If **yes**, describe: The nurses and medical team utilized therapeutic communication techniques by asking JJ to describe her anxiety and allowing her the time to explain why she feels anxious about Buck's traction. The team never mocked or dismissed JJ's feelings after falling and requiring more care and time than from the initial presentation to the hospital.
    b. If **no**, describe: _____
    _____

Reflection

1) Go back to your Preconference Template:
    a. Indicate (circle, star, highlight, etc.) the components of your preconference template that you saw applied to the care of this patient.
2) Review your Nursing Process Form: Did you select a correct priority nursing problem?
    a. If **yes,** write it here: Impaired Urinary Elimination, although Decreased Cardiac Output was the main priority problem during the simulation.
    b. If **no,** write what you now understand the priority nursing problem to be:
    _____
3) Review your Patient Problem Form: Did you see many of your anticipated nursing assessments and interventions used?
    a. Were there interventions you included that *were not* used in the scenario that could help this patient?
        i. If **yes**, describe: Some interventions that were not used in the scenario that could help this patient were to provide a calm environment, assess knowledge about bladder irritating food and educate about those irritants, educate on performing appropriate pericare (wiping front to back), and collaborating with the provider and laboratory earlier regarding providing blood culture samples to rule out sepsis.

ii. If **no**, describe:

_____

_____

4) After completing the scenario, what is your patient at risk for developing?

   a. Septic Shock

   b. Why? The patient was admitted for urosepsis, demonstrated restlessness (an early sign of shock), and was in metabolic acidosis by the end of the simulation. Although the client was stable upon report in the morning of the first day of care, the client became septic due to her UTI causing widespread infection and a whole-body inflammatory response.

5) What was your biggest "take-away" from participating in the care of this patient? How did this impact your nursing practice?

My biggest takeaway from participating in the care of this patient was that care is not linear. Although the patient I received in the report was admitted for a UTI, other things became apparent throughout the shift and changed the direction of the scenario. For example, a neighbor brought in home meds for CHF which required med reconciliation and new orders for cardiac meds. The patient fell and required Buck's traction to prevent muscle spasms. During the bed bath, a stage 2 pressure injury was discovered and needed barrier cream along with a wound care consult. Also, the patient was at risk for septic shock and was in metabolic acidosis which required a continuous infusion of normal saline along with STAT orders for blood cultures and a urinalysis.

This scenario impacted my nursing practice by reinforcing that each patient's care is individualized and should not be treated the same as someone with the same diagnosis. This could result in potential harm to the patient. This is why it is important to get a baseline knowledge of the pathophysiology of diseases while understanding that each patient may have different presentations of those diseases and different responses to treatments. Performing a good assessment and being attentive to the patient's words and feelings will allow me to individualize care and keep them safe during their hospitalization.