

### Medications

**Vancomycin 205 mg (every 6 hours)** Pharm Class-Glycopeptide / Therapeutic Class- Antibiotic The patient is taking this drug to treat the serious bacterial infection of sepsis (2023 Nurse's Drug Handbook, 2023). **Key Nursing Assessments:** Expect to monitor the peaks and troughs of the blood vancomycin concentration, higher troughs of 15-20 mg/L are associated with more nephrotoxicity (2023 Nurse's Drug Handbook, 2023). Check CBC, BUN, and serum creatinine levels often because vancomycin can cause acute kidney injury (2023 Nurse's Drug Handbook, 2023). Assess hearing because transient or permanent ototoxicity can occur with excessive amounts of vancomycin (2023 Nurse's Drug Handbook, 2023).

**Cefepime 700 mg (every 12 hours)** Pharm Class-Fourth generation cephalosporin / Therapeutic Class- Antibiotic The patient is taking this medication to treat their mild to moderate Urinary Tract Infection (2023 Nurse's Drug Handbook, 2023). **Key Nursing Assessments:** Expect to monitor the patient for hypersensitivity, primarily with the first dose, because of severe reactions (2023 Nurse's Drug Handbook, 2023). Monitor the patient's response closely due to an increase in mortality from other drugs and notify the provider immediately if their condition worsens (2023 Nurse's Drug Handbook, 2023). Monitor this patient closely due to renal issues because this drug is excreted in the kidneys (2023 Nurse's Drug Handbook, 2023).

### Relevant Lab Values/Diagnostics

**Glucose** 101 (normal range 74-100) This value is slightly above normal and could be a stress response (Pagana, 2021).

**WBC:** 17.49 (normal range 5.14-13.38) This value is above normal and shows that this patient has an infection (Pagana, 2021).

**RBC:** 3.75 (normal range 3.89-4.97) This value is below normal and could be tied to renal disease since this patient is having kidney issues (Pagana, 2021).

**HGB:** 9.6 (normal range 10.2-12.7) This value is below normal and could mean renal disease, anemia, or a nutritional deficiency (Pagana, 2021).

**HCT:** 27.8 (normal range 31-37.7) This value is below normal and could mean renal disease (Pagana, 2021).

**Platelet:** 508 (normal range 202-403) This value is above normal, and it could be related to iron deficiency anemia (Pagana, 2021).

**Absolute Neutrophils:** 11.29 (normal range 1.54-7.92) This value is above normal and could be due to physical or emotional stress or an inflammatory disorder (Pagana, 2021).

**Absolute Monocytes:** 2.28 (normal range 0.19-0.94) This value is above normal and could be related to an inflammatory disorder (Pagana, 2021).

**Absolute Basophils:** 0.15 (normal range 0.01-0.06) This value is above normal and could point to Leukemia (Pagana, 2021).

**Immature Granulocytes:** 0.59 (normal range 0.00-0.06) This value is above normal and means infection (Pagana, 2021).

**Chloride:** 111 (normal range 98-107) This value is above normal and is related to the patient's kidney dysfunction (Pagana, 2021).

**CO2:** 20 (normal range 22-29) This value is below normal and could mean renal failure (Pagana, 2021).

**Creatinine:** 0.54 (normal range 0.70-1.30) This value is below normal and could be due to decreased muscle mass (Pagana, 2021).

**Urinalysis:**

**Urine:** Blood (normal range is no blood in urine) This value is trauma on the urinary tract; especially with the patient's history (Pagana, 2021).

**Leukocyte Esterase:** Large! (normal range is none) This value is due to the patient's Urinary Tract Infection (Pagana, 2021).

**Protein:** 301 (normal range is none) This value could be due to Polycystic Kidney Disease or a Bladder tumor (Pagana, 2021).

**Ultrasound of the Kidneys/Bladder-**

*Results: Right Kidney 9.1 cm but previously 8.7 cm. Left is 4.8 cm. Moderate hydronephrosis, significant dilation of the right ureter, but no left hydronephrosis.*

This diagnostic test shows that the right kidney is larger than previously measured which is swelling of the kidney showing urine retention.

### Demographic Data

**Admitting diagnosis:** Urinary Tract Infection

**Age of client:** 2 years old

**Sex:** Male

**Weight in kgs:** 13.7 kg

**Allergies:** No Known Allergies

**Date of admission:** 9/5/24

**Psychosocial Developmental Stage:** Autonomy versus Shame and Doubt Stage

**Cognitive Development Stage:** Preoperational Stage

### Admission History

The patient presents with a low-grade fever for the previous 72 hours, reaching a maximum temperature of 101 degrees Fahrenheit. In addition, there is some nasal congestion and mucus, constipation, and diarrhea. The patient was not lethargic, but more fatigued than usual. The symptoms were treated with Tylenol.

### Medical History

**Previous Medical History:** Bilateral hydronephrosis, bilateral ureteral reimplantation with left taper

**Prior Hospitalizations:** Previous urological surgery and RSV following Bronchiolitis

**Past Surgical History:** Cutaneous Vesicostomy, Ureter reimplantation/ Ureterostomy takedown, left ureter tapering

**Social needs:** The patient wants to explore and gain knowledge and experiment with unknown environments (Rudd & Kocisko, 2023).

### Pathophysiology- Urinary Tract Infection with Sepsis

**Disease process:**

The urinary tract comprises the kidneys, ureters, bladder, and urethra. It is usually free from bacteria, except for the urethral opening. When bacteria are introduced to the urinary tract, they multiply, which can lead to infection (Rudd & Kocisko, 2023). Urinary outflow obstructions reduce the bladder's ability to fend against bacterial infections, and stagnant urine serves as a favorable environment for the growth of bacteria (Rudd & Kocisko, 2023). There are various causes of urinary outflow interference. These include having sex, persistently suppressing one's need to urinate, urinary tract instrumentation, and occlusion of the urinary tract (Rudd & Kocisko, 2023). A potentially fatal illness called urosepsis, which is brought on by bacteremia, can develop from an untreated urinary tract infection. Fever, chills, dizziness, and confusion are signs of urosepsis. According to Rudd and Kocisko (2023), this patient was more vulnerable to urosepsis due to his obstruction.

**S/S of disease:**

The signs and symptoms of a urinary tract infection are pain and burning with urination, the high number of times one urinates, hesitancy upon urinating with an interrupted stream flow, and urgency or a feeling that urination will occur immediately (Rudd & Kocisko, 2023). The urethra and bladder's edema and inflammation are the causes of these symptoms (Rudd & Kocisko, 2023). Another possible symptom is supra-pubic tenderness, which is uncommon (Rudd & Kocisko, 2023).

**Method of Diagnosis:**

The diagnostic techniques include serum electrolytes, urine culture and sensitivity, microscopic or macroscopic urinalysis, complete blood count with differential, and urine culture and sensitivity (Rudd & Kocisko, 2023). This patient's urinalysis and complete blood count revealed a urinary tract infection. An abdominal X-ray, known as a kidney-ureter-bladder X-ray, can be performed to check for masses (Rudd & Kocisko, 2023). This diagnostic test was performed on this patient, and it was discovered that one kidney was enlarged.

**Treatment of disease:**

Urinary tract infections are treated with antibiotics; the kind of antibiotic used is determined by the culture and sensitivity test findings (Rudd & Kocisko, 2023). Patients also need to stay hydrated to get rid of the bacteria (Rudd & Kocisko, 2023). Because it reduces the adherence of bacteria to the bladder wall, cranberry juice may also lower the incidence of a urinary tract infection (Rudd & Kocisko, 2023).

### Active Orders

**Vitals every 4 hours:** This order is needed to assess the patient's health status such as blood pressure, respirations, oxygen, temperature, and heart rate.

**IV Access:** This order is needed so qualified medical personnel can easily and quickly administer medications through an IV.

**Intake and Output:** This order is necessary for a few different reasons. It ensures the patient's fluid intake is equal to the output. It will inform medical personnel if the patient is retaining urine, check for fluid overload, and monitor for dehydration. It is also necessary to be able to examine the urine for clarity, color, or blood because of the urinary tract infection.

**Pulse Oximetry:** This order is necessary for the patient because he currently has Rhinovirus, so his oxygen level should be monitored.

**Notify the Physician of 102 degrees or higher in the first 48 hours or 101 degrees or higher or a 2-degree increase:** The patient needs this order so the nursing staff can notify the provider if the patient's condition is worsening. This order will also inform the provider if other measures or treatments are necessary for the patient's overall health.

Assessment	
<b>General</b>	The patient is lying supine sucking on a pacifier, holding his two stuffed animals, and watching cartoons. He is well-groomed in pajamas, alert, and seemed oriented but appeared very tired and upset. Although his father is comforting him, he is still rather agitated. You could see the agitation arise in him when medical personnel walked in the room, assuming it was from recent trauma from his prior hospitalization.
<b>Integument</b>	The skin is warm and dry with a normal color of white with no bruises, rashes, bumps, cyanosis, or anything abnormal. A scar is seen on the lower abdomen from the previous surgery. The hair on his arms and legs has normal distribution and texture. The nails are without clubbing, and skin turgor is normal. Capillary refill time is less than 3 seconds on fingers and toes.
<b>HEENT</b>	The head and neck are symmetrical, there are no apparent nodules on the neck, the thyroid cannot be felt, and the trachea is midline without deviation. Two positive carotid pulses are on each side, and no lymphadenopathy is noted. There is no apparent leakage from the eyes, and both eyes have pink conjunctiva, white sclera, and clear corneas. Both lids are pink and wet, with no visible lesions or discharge. Both eyes are PERRLA, red light reflex, and intact EOMs. The mouth and throat are slightly dry, and somewhat clear drainage is coming from the nose.
<b>Cardiovascular</b>	The heart rate is tachycardic with clear S1 and S2 without gallops or rubs. PMI is noticeable at the MCL's fifth intercostal gap. No neck vein distention or edema is present.
<b>Respiratory</b>	The Normal breathing rate and pattern, symmetrical and unlabored breathing, and unobstructed lung sounds throughout, without wheezes, crackles, or rhonchi.
<b>Genitourinary</b>	Urine is clear and yellow with no blood.
<b>Gastrointestinal</b>	The abdomen is soft but could be tender due to the previous surgery. Bowel sounds are normal in all four quadrants. A scar is seen on the lower abdomen at approximately 6.35 cm.
<b>Musculoskeletal</b>	All extremities have a full range of motion.
<b>Neurological</b>	The patient's level of consciousness is awake but appears very tired. No speech was noted during this assessment, but he was crying.
<b>Most recent VS (highlight if abnormal)</b>	<p><b>Time:</b> 0846</p> <p><b>Temperature:</b> 98.7</p> <p><b>Route:</b> 10</p> <p><b>RR:</b> 28</p> <p><b>HR:</b> 152</p> <p><b>BP:</b> 105/64</p>

	<p><b>Oxygen saturation:</b> 98</p> <p><b>Oxygen needs:</b> N/A</p>
<b>Pain and Pain Scale Used</b>	RFLACC pain rating – Face 0, Legs 0, Activity 0, Cry 0, Consolability 0.

<b>Nursing Diagnosis 1</b>	<b>Nursing Diagnosis 2</b>	<b>Nursing Diagnosis 3</b>
Risk for infection related to being unable to eliminate urine as evidenced by the swelling of the kidney and elevated temperature (Phelps, 2023).	Risk for Impaired Urinary Elimination related to complications from previous surgery as evidenced by the swelling of the kidney (Phelps, 2023).	Risk for Acute Pain related to the inflammatory process as evidenced by the patient crying and mood change (Phelps, 2023).
<b>Rationale</b> If urinary waste is built up and the patient is unable to void, he is at risk for infection. The body must be able to rid waste.	<b>Rationale</b> The patient recently had surgery. The educated guess is that there was a complication from the surgery because the patient was having swelling of the kidneys, or hydronephrosis, afterward.	<b>Rationale</b> The patient was excessively crying and most likely was in pain due to his urinary tract infection and sepsis.
<b>Interventions</b> <b>Intervention 1:</b> Monitor temperature at least every 4 hours and report elevations immediately (Phelps, 2023). <b>Intervention 2:</b> Monitor the White Blood Cell count (WBC) as ordered and report any rises or falls (Phelps, 2023).	<b>Interventions</b> <b>Intervention 1:</b> Observe the patient's voiding patterns and document urine color and characteristics, intake and output, and daily weight (Phelps, 2023). <b>Intervention 2:</b> Assess for dehydration by checking the skin turgor, dry mucous membranes, and flushed dry skin (Phelps, 2023).	<b>Interventions</b> <b>Intervention 1:</b> Assess the patient's vital signs and symptoms of pain behavioral cues, and give pain medication as prescribed (Phelps, 2023). <b>Intervention 2:</b> Perform comfort measures to help ease the pain, such as massage and repositioning (Phelps, 2023).
<b>Evaluation of Interventions</b> The patient maintained a normal body temperature (Phelps, 2023). The patient's WBC count remained within normal range (Phelps, 2023).	<b>Evaluation of Interventions</b> The patient's urine had normal color and characteristics with balanced intake and output (Phelps, 2023). The patient maintained urinary continence and emptied his bladder every 2 hours (Phelps, 2023). The patient also showed no signs of dehydration (Phelps, 2023)	<b>Evaluation of Interventions</b> The patient's pain level lowered, and the amount and frequency of pain medication needed decreased (Phelps, 2023). The patient's pain decreased with the additional techniques used (Phelps, 2023).

**References (3):**

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