

### Medications

**Acetaminophen 323.6 mg** – This is a safe and therapeutic dose. (every 4 hours for mild pain or fever 100.4F or greater)- Pharm Class-Nonsalicylate, para-aminophenol derivative/ Therapeutic Class- Antipyretic, nonopioid analgesic. The patient is taking this medication to treat their mild to moderate pain and to relieve fever (2023 Nurse’s Drug Handbook, 2023). **Key Nursing Assessments:** Calculate total daily intake of acetaminophen including other medicines that may contain acetaminophen to make sure the daily dose is not exceeded (2023 Nurse’s Drug Handbook, 2023). Acetaminophen can cause hepatotoxicity; monitoring liver labs is necessary (2023 Nurse’s Drug Handbook, 2023). Monitor patients closely with hepatic disease, renal impairment, or chronic malnutrition (2023 Nurse’s Drug Handbook, 2023).

**Ceftriaxone 780 mg**-This is a safe and therapeutic dose. (every 12 hours) Pharm Class-Third generation cephalosporin / Therapeutic Class- Antibiotic The patient is taking this medication to treat their pneumonia bacterial infection (2023 Nurse’s Drug Handbook, 2023). **Key Nursing Assessments:** Monitor the patient’s BUN and creatinine levels for nephrotoxicity (2023 Nurse’s Drug Handbook, 2023). Monitor the patient’s bowel pattern; severe diarrhea could mean C. diff (2023 Nurse’s Drug Handbook, 2023). Assess for signs of superinfection, such as fever, drainage malaise, or diarrhea (2023 Nurse’s Drug Handbook, 2023).

**Vancomycin: Vancomycin 234 mg**- I am unsure of this dosage. The book says 10 mg /kg which would be 153 mg (2023, Nurse’s Drug Handbook, 2023) (IVPB every 6 hours)- Pharm Class-Glycopeptide/ Therapeutic Class- Antibiotic The patient is taking this drug to treat the pneumonia infection (2023 Nurse’s Drug Handbook, 2023). **Key Nursing Assessments:** A blood vancomycin concentration should be monitored for peaks and troughs; troughs greater than 15-20 mg/L are linked to increased nephrotoxicity (2023 Nurse’s Drug Handbook, 2023). As vancomycin can cause acute renal impairment, check your serum creatinine, BUN, and CBC levels frequently (2023 Nurse’s Drug Handbook, 2023). Because high doses of vancomycin may induce temporary or permanent ototoxicity, evaluate the patient’s hearing (2023 Nurse’s Drug Handbook, 2023).

**Ibuprofen 156 mg**- This is a safe and therapeutic dose. (every 6 to 8 hours, as needed) Pharm Class-NSAID / Therapeutic Class- Analgesic, anti-inflammatory, antipyretic. The patient is taking this medication to treat mild to moderate pain (2023 Nurse’s Drug Handbook, 2023). **Key Nursing Assessments:** Expect to monitor the patient’s liver enzymes as ordered because of severe hepatic reactions (2023 Nurse’s Drug Handbook, 2023). Monitor the patient’s CBC for decreased hemoglobin and hematocrit (2023 Nurse’s Drug Handbook, 2023). Take this drug with food or after meals to reduce GI stress (2023 Nurse’s Drug Handbook, 2023).

**IV Fluids D5-0.9 NaCl with KCl 20 mEq**- This is a safe and therapeutic dose. Pharm Class- Electrolyte cation/ Therapeutic Class- Electrolyte replacement. The patient is on this because of the antibiotics he is on (2023 Nurse’s Drug Handbook, 2023). **Key Nursing Assessments:** Monitor serum potassium levels before and during administration (2023 Nurse’s Drug Handbook, 2023). Monitor patient for signs of hypokalemia (2023 Nurse’s Drug Handbook, 2023). Monitor serum creatinine level and urine output during administration, due to adequate renal function is needed (2023 Nurse’s Drug Handbook, 2023).

### Demographic Data

**Admitting diagnosis:** Parapneumonic Effusion with suspected Empyema

**Age of client:** 2 years old

**Sex:** Male

**Weight in kgs:** 15.3 kg

**Allergies:** No Known Allergies

**Date of admission:** 9/25/24

### Pathophysiology- Parapneumonic Effusion with Suspected Empyema

**Disease process:**  
Bacterial pneumonia is caused by bacteria entering the nose as a pathway by which it enters the respiratory system (Capriotti, 2023). Once in the respiratory tract, bacteria infiltrate the tissues and can cause inflammation and produce a fluid that prevents the alveoli from exchanging oxygen (Capriotti, 2023). Parapneumonic effusion is a type of pleural effusion that is a fluid buildup in the pleural space after pneumonia, compressing lung tissue and inhibiting lung inflation (Capriotti, 2023). Empyema is the name for the pus in the pleural space, and the accumulated fluid puts pressure on the lungs, making breathing challenging (Capriotti, 2023).

**S/S of disease:**  
Pneumonia and pleural effusion symptoms include fever, coughing, tachycardia, dyspnea, tachypnea, pleuritic chest tightness, sweating, malaise, diminished breath sounds, and weariness (Capriotti, 2023). The symptoms of empyema are similar to those of pneumonia and can include purulent expectoration in the cough, headache, dizziness, and loss of appetite (Capriotti, 2023). The patient displayed the signs and symptoms in the emergency room. He was lethargic, had poor oxygen levels, and had a temperature for several days.

**Method of Diagnosis:**  
According to Capriotti (2023), the diagnostic methods include chest x-ray, CT scan, ultrasound, and complete blood count with differential. Due to the infection, the patient’s white blood cell count was elevated. A chest x-ray revealed a parapneumonic effusion with interstitial alterations and thickening of the peri bronchial wall.

**Treatment of disease:**  
The cause of parapneumonic effusions associated with empyema is the basis for treatment (Capriotti, 2023). This patient is awaiting cultures for fungi, aerobic, and anaerobic bacteria to assess if antibiotics are necessary. The culture’s results will dictate the type of antibiotic administered. Sometimes, additional measures are required, like the chest tube. This patient had to have pus and fluid removed via a surgically implanted chest tube.

### Admission History

The patient was brought into the Emergency Department from Convenient Care for abnormal lab results. The patient experienced hypoxia to 88% on room air and has had a fever for a week, which was managed with Tylenol. Additionally, the patient’s chest x-ray was abnormal. When they arrived, the patient had only two wet diapers all day but ate and drank

### Active Orders

**Vital signs every 4 hours:** This order is required to evaluate the patient’s vital signs—blood pressure, respiration, oxygen saturation, temperature, and heart rate.

**Chest Tube Care Pleurovac drain 20cm water suction IR drainage catheter post procedure:** Today’s procedure included inserting a chest tube for the patient. The nurse should follow this order to remove the pus or fluid from the pleural cavity. This is essential for the patient’s respiratory system to operate as intended.

**IV Access (Peripheral IV):** This order is required so that trained medical professionals can rapidly and simply give IV medicines.

**Intake and Output:** There are several reasons why this order is required. It guarantees that the patient’s fluid intake and outflow are equivalent. It will alert medical staff to urine retention, detect fluid overload, and keep an eye out for dehydration. The ability to visually inspect the urine for blood, color, and clarity is also essential.

**Notify the Physician of 102 degrees or higher in the first 48 hours or 101 degrees or higher or a 2-degree increase:** For the nursing staff to alert the provider if the patient’s condition worsens, the patient needs this order. If additional actions or therapies are required for the patient’s general health, this order will also let the provider know.

**Continuous Pulse Oximetry:** The patient has rhinovirus and is on oxygen therapy, hence it is vital to monitor his oxygen level, which is why this order is necessary.

**Fungus Culture:** This order is necessary to see what type of bacteria is causing the infection in the patient.

**Aerobic Culture:** This order is necessary to see what type of bacteria is causing the infection in the patient.

**Anaerobic Culture:** This order is necessary to see what type of bacteria is causing the infection in the patient.

### Relevant Lab Values/Diagnostics

**Albumin:** 2.1 (normal range 4.5-9g/dL) This value is below normal and signifies the inflammatory disease of pneumonia (Pagana, 2021).

**WBC:** 18.24 (normal range 6.2-17.00/mm3) This value is above normal and shows that this patient has an infection (Pagana, 2021).

**Platelet:** 412 (normal range 150-400 mm3) This value is related to the stress on the body from the inflammation process (Pagana, 2021).

**C-Reactive Protein:** 16.98 (normal range < 1.0 mg/dL) This value shows a bacterial infection in the patient (Pagana, 2021).

**Absolute Neutrophils:** 11.69 (normal range 1.54-7.92 mm3) This value is above normal and could be due to physical or emotional stress or the patient's inflammatory disorder (Pagana, 2021).

**Absolute Monocytes:** 1.48 (normal range 0.19-0.94) This value is above normal and is related to an inflammatory disorder (Pagana, 2021).

**Immature Granulocytes:** 0.54 (normal range 0.00-0.06) This value is above normal and means infection (Pagana, 2021).

**MRSA Screen:** Detected (normal not detected) This detection test shows the patient has a MRSA infection.

**Rhino/enterovirus:** Detected (normal not detected) This detection test shows the patient has a Rhino/enterovirus infection.

**Diagnostics:** X-ray of the chest shows left parapneumonic effusion. There is left retrocardiac airspace opacity compatible with consolidation. More diffuse interstitial changes are present with peri bronchial wall thickening.

*This diagnostic test shows that the patient does have a parapneumonic effusion. The wall thickening is due to inflammation of the lungs.*

### Medical History

**Previous Medical History:** Fever on 11/5/22, RSV Bronchiolitis on 11/5/22, Acute Respiratory Failure on 11/6/22, and vomiting on 11/6/22.

**Prior Hospitalizations:** RSV admission in 2022.

**Past Surgical History:** Circumcision on 12/29/21.

**Social needs:** The patient desires to learn, investigate, and experiment in new settings (Rudd & Kocisko, 2023).

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<b>Assessment</b>	
<b>General</b>	The patient was sound asleep beside his mother and holding a stuffed animal. There were no apparent signs of distress while sleeping. His nasal cannula was in place, and no movements or grimacing were noticed, suggesting that he was in pain. The patient had a chest tube placement earlier in the day and appeared to be resting comfortably.
<b>Integument</b>	There are no unusual lumps, rashes, bruises, cyanosis, or other abnormalities on his warm, dry skin, which is normal in color for his ethnicity. His arms and legs have typical-sized and textured hair. The skin turgor is normal, and the nails are free of clubbing. The capillary refill time on the fingers and toes is less than three seconds.
<b>HEENT</b>	<b>Slight congestion in the nose with clear rhinorrhea was noticed.</b> The trachea is midline with no deviation, the head and neck are symmetrical, the thyroid cannot be felt, and there are no visible nodules on the neck. Each side has two positive carotid pulses, and there is no evidence of lymphadenopathy.
<b>Cardiovascular</b>	The heart rate is 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>	<b>Right lung sounds were able to be obtained, which was diminished</b> but no stridor, wheezing, or rhonchi were noted. <b>Abdominal breathing</b> was seen but the breathing rate was normal. <b>Snoring</b> was also observed.
<b>Genitourinary</b>	The diaper was not available to inspect urine.
<b>Gastrointestinal</b>	The abdomen is soft, and bowel sounds are normal in all four quadrants.
<b>Musculoskeletal</b>	The patient was asleep, so a full musculoskeletal assessment was not performed at this time.
<b>Neurological</b>	The patient's level of consciousness was asleep, and no speech was heard during this assessment.
<b>Most recent VS (highlight if abnormal)</b>	<b>Time:</b> 1500  <b>Temperature:</b> 98.8 F  <b>Route:</b> Axillary  <b>RR:</b> 34  <b>HR:</b> 128

	<p><b>BP and MAP:</b> 116/72</p> <p><b>Oxygen saturation:</b> 98%</p> <p><b>Oxygen needs:</b> 5L/min oxygen therapy</p>
<b>Pain and Pain Scale Used</b>	FLACC pain rating – Face 0, Legs 0, Activity 0, Cry 0, Consolability 0.

<p><b>Nursing Diagnosis 1</b> Risk for impaired gas exchange related to altered oxygen supply as evidenced by the patient’s decreased oxygen saturation upon arrival at the Emergency Department (Phelps, 2023).</p>	<p><b>Nursing Diagnosis 2</b> Risk for ineffective airway clearance related to the obstructive airway from retained secretions as evidenced by the drainage noted in the Pleurovac drain (Phelps, 2023).</p>	<p><b>Nursing Diagnosis 3</b> Risk for Acute Pain related to the inflammatory process as evidenced by the patient clinging to his mother and being visibly upset (Phelps, 2023).</p>
<p><b>Rationale</b> Upon arrival at the Emergency Department, the patient’s oxygen level was 88%, indicating impaired gas exchange.</p>	<p><b>Rationale</b> The patient had surgery for a chest tube placement and drainage was noted in the Pleurovac drain.</p>	<p><b>Rationale</b> The patient's condition and the chest tube placement operation likely caused him discomfort, as seen by his clinginess and crying.</p>
<p><b>Interventions</b> <b>Intervention 1:</b> Monitor vital signs every 2 hours right after surgery and then continue every 4 hours. A change in vital signs can signal gas exchange impairment (Phelps, 2023). <b>Intervention 2:</b> Monitor for changes in the rate and quality of breathing, the usage of the accessory muscles, and changed lung ventilation (Phelps, 2023). An increase in respiratory effort is a sign of hypoxia and changes in respiratory patterns could indicate low oxygen levels.</p>	<p><b>Interventions</b> <b>Intervention 1:</b> Position the patient with the head of the bed elevated to help prevent secretions from accumulating (Phelps, 2023). <b>Intervention 2:</b> Involve Respiratory Therapists in the patient’s care to provide other measures to help keep the airway clear (Phelps, 2023).</p>	<p><b>Interventions</b> <b>Intervention 1:</b> Evaluate the patient's vital signs, look for behavioral indicators that indicate discomfort, and administer pain medicine as directed (Phelps, 2023). <b>Intervention 2:</b> Apply comfort measures, such as repositioning, to alleviate the pain (Phelps, 2023).</p>
<p><b>Evaluation of Interventions</b> The patient’s vital signs remained within normal limits (Phelps, 2023).  The patient’s quality of breathing remained stable, and no use of accessory muscles was noted</p>	<p><b>Evaluation of Interventions</b> The patient’s secretions lessened with the head of the bed elevated (Phelps, 2023).  Respiratory Therapists provided care, such as chest physiotherapy, and the airway was kept clear</p>	<p><b>Evaluation of Interventions</b> The patient experienced less discomfort, and less pain medication was required in terms of both quantity and frequency (Phelps, 2023).  With the repositioning applied, the patient's pain</p>

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		<b>What do you expect?</b>	<b>What did you observe?</b>
<b>Erickson's Psychosocial Developmental Stage</b>	The patient is currently in the autonomy vs. shame and doubt stage.	During Erickson's psychosocial developmental stage, the patient is expected to show affection and imitate adults and playmates spontaneously (Rudd & Kocisko, 2023).	During my time with the patient, I observed that he was very clingy with his mother, with no imitation of her.
<b>Piaget's Cognitive Developmental Stage</b>	The patient is currently in the preoperational stage.	During Piaget's cognitive developmental stage, the patient is expected to use all senses to explore the environment and play make-believe with people, dolls, or animals (Rudd & Kocisko, 2023).	I observed that the patient was not interested in using all his senses to explore or play but rather cuddle with his mother.
<b>Age-Appropriate Growth &amp; Development Milestones</b>	<ol style="list-style-type: none"> <li>1. Walking to running (Rudd &amp; Kocisko, 2023).</li> <li>2. Throwing a ball (Rudd &amp; Kocisko, 2023).</li> <li>3. Managing a spoon (Rudd &amp; Kocisko, 2023).</li> </ol>		
<b>Age-Appropriate Diversional Activities</b>	<ol style="list-style-type: none"> <li>1. Building blocks (Rudd &amp; Kocisko, 2023).</li> <li>2. Reading a book (Rudd &amp; Kocisko, 2023).</li> <li>3. Playing with toy instruments (Rudd &amp; Kocisko, 2023).</li> </ol>		

### References

*2023 nurse's drug handbook* (22nd ed.). (2023). Jones & Bartlett Learning.

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Phelps, L. L. (2023). *Nursing diagnosis reference manual*. (12<sup>th</sup> ed.). Wolters Kluwer.

Rudd, K. & Kocisko, D.M. (2023). *Davis advantage for pediatric nursing: Critical components of nursing care* (3<sup>rd</sup> ed.). F.A. Davis Company.