Lakeview College of Nursing **Student Name: Abby Erickson**
N433 Pediatrics Clinical Care Plan

CLINICAL DATE: October 19, 2019

Patient's Age: 3 years old **Weight** (in kg)**:** 13.3 kg **BMI:** 15.6 kg/m

Allergies/Sensitivities to medications, foods, contact, environmental, etc. Include reactions:
No known drug allergies

Chief Complaint (Reason for admission): Persistent cough, wheezing, shortness of breath

Admit date: 10/16/2019

Other co-existing conditions: Moderate persistent asthma

History of Present Illness (What events led up to this child being admitted to the hospital, etc.):

Patient is a 3-year-old male that presented to the ED on 10/15/2019 with complaints of persistent cough, wheezing and shortness of breath. Patient has a past medical history of moderate persistent asthma and Klinefelter syndrome. Client was prescribed steroids and discharged. Patient presents again to the ED on 10/16/2019 with worsening symptoms. Patient is afebrile. Client is tachycardic with an increased respiratory rate. Review of systems indicate abdominal muscle use, supraclavicular retractions and a congested cough. Patient is not displaying any manifestations of pain.

Pertinent Events during this Admission and Hospitalization (IV starts, lab test, etc.):

- 22 gauge peripheral IV dated 10/16/2019
- Chest x-ray indicated by dyspnea and a history of Asthma. Findings include AP portable, perihilar opacities of possible perihilar pneumonitis, and perihilar bronchiolar wall thickening of bronchiolitis.
- Rhinovirus/enterovirus and Mycoplasma Pneumoniae detected
- Abnormal lab values include: glucose, potassium, BUN, creatinine, and bands

Past Medical & Surgical History (illnesses, hospitalizations, immunizations, birth history-any complications?)

Patient is up to date on all immunizations. Patient has a past medical history of moderate persistent asthma and Klinefelter syndrome. Client has been hospitalized numerous times for acute asthma exacerbations. No surgical history noted.

Child's diagnosis: Acute asthma exacerbation, Mycoplasma Pneumonia

Etiology of disease process (what causes it): Mycoplasma pneumoniae is a type of bacteria that causes illness by damaging the lining of the respiratory system (CDC, 2019).

Pathophysiology: **(What is the pathophysiology of this disease and what goes on in the body as a result of this disease? Put in your own words & site reference)**

"Pneumonia is defined as inflammation of the lung parenchyma that is typically characterized by lung consolidation with alveoli filled with exudate" (Sorenson, Quinn, & Klein, 2017, pg. 481). It is most often caused by infection. Pneumonia caused by M. Pneumoniae is a type of atypical bacterial pneumonia. This is because it does not respond to sulfonamides or penicillin (CDC, 2019). M. pneumoniae lacks a rigid cell well, this allows the bacteria to alter size and shape. Mycoplasma pneumonia is spread through airborne droplets and is exclusively a human pathogen. The bacterium attaches to and damages respiratory epithelial cells producing local cytotoxic effects (CDC, 2019).

Clinical manifestations of pneumonia include an abrupt onset of high fever, chills and productive cough with mucopurulent drainage (Sorenson, Quinn, & Klein, 2017). Atypical pneumonia often presents with milder symptoms, but symptoms last longer. Mycoplasma pneumonias can result in systemic symptoms such as anemia, rashes, or neurologic syndromes (Sorenson, Quinn, Klein, 2017). In children less than 5 years old, M. pneumonia may mimic the clinical manifestations of a cold (CDC, 2019).

Due to the similarities in clinical manifestations, a chest x-ray is needed to distinguish between pneumonia and bronchitis. Computed tomography (CT) scans are the gold standard for diagnosing pneumonia (Hinkle & Cheever, 2018). In addition, sputum cultures can be useful for identifying dominant, drug-resistant, and unsuspected pathogens in bacterial pneumonias.

"Treatment of pneumonia depends on the severity of the pneumonia, the causative pathogen, and the health status of the patient" (Sorenson, Quinn, & Klein, 2017, pg. 485). Treatment modalities include supportive measures, antibiotics, and supplemental oxygen. Pneumonias that are treated with antibiotics specific for the bacteria can show quick and dramatic improvement (Sorenson, Quinn, & Klein, 2017).

Reference:

Center for Disease Control and Prevention (CDC). (2019). *Mycoplasma Pneumonia Infections*. Retrieved October 24, 2019, from https://www.cdc.gov/pneumonia/atypical/mycoplasma/index.html

Hinkle, J. L. & Cheever, K. H. (2018). *Brunner & Suddarth's Textbook of Medical Surgical Nursing*. (14th ed.). Philadelphia, PA: Wolters Kluwer

Sorenson, M., Quinn, L., & Klein, D. (2017). *Pathophysiology: Concepts of Human Disease*. Hoboken, NJ: Pearson

Clinical Manifestations of the disease (circle those exhibited by your patient) – include lab values, tests, etc:

Common signs and symptoms of Pneumonia include productive cough, fever and chills, shortness of breath, chest pain, and fatigue (CDC, 2019).

Reference:

Center for Disease Control and Prevention (CDC). (2019). Signs and Symptoms. Retrieved October 24, 2019, from https://www.cdc.gov/pneumonia/atypical/mycoplasma/about/signs-symptoms.html

Vital Signs: **(List your source for the Normal ranges)**

T: 36.8 C (36.4-37.2)

HR: 127 (60-110)

B/P: 108/52 (80-117/47-76)

RR: 28/min (21-25)

O2: 97% RA (92-100)

Reference:

Ricci, S., Kyle, T. & Carmen, S. (Eds). (2017). *Maternity and Pediatric Nursing*. Philadelphia,

PA: Wolters Kluwer

Intake/Output: (IV, PO, Out & Deficits)

Input: +240 Apple Juice

Output: 244 mL

Clinical Day Evaluation Data – Head to toe physical assessment (Do not use WNL or WDL):

HEAD: Normocephalic; no noted deviations
EARS: No abnormal drainage; normal hearing to voices
EYES: PERRLA noted; EOMI intact
NOSE: No septal deviation; patent
TEETH: Oral mucosa is pink and moist
CARDIOVASCULAR: S1, S2 auscultated; NSR; no noted rubs or murmurs; peripheral pulses +2
RESPIRATORY: No abdominal muscle use; no noted supraclavicular retractions; respiratory rate increased; breath sounds clear in all fields
INTEGUMENTARY: Skin is warm and dry; no noted rash, scars, or bruises
GENITOURINARY: Urine is yellow in color and has no sediments; no dysuria; no noted odor
GASTROINSTESTINAL: No noted ascites; bowel sounds present in all four quadrants; no noted tenderness and pain upon palpation; no nausea or vomiting observed

Pain History & assessment: Type, location, intensity & timing, precipitating factors, relief measures/interventions, rating scale used, physiological and/or behavioral signs, evaluation of pain status after medication is given:

Patient is not demonstrating any signs of pain at this time. The FLACC scale was used to assess pain. Patient score is a 0. The score was based on the face, legs, activity, cry, and consolability of patient.

Lab Tests:

TEST	**NORMAL** (specific for age)	**Prior**	**Clinical Day**	**Correlation to current health status & comment on trending (comment only on abnormal lab results)**
RBCs	3.89-4.97	3.98	N/A	N/A
Hgb	10.2-12.7	11.2	N/A	N/A
Hct	37-37.7	34.6	N/A	N/A
MCH	23.7-28.3	28.1	N/A	N/A
MCHC	32-34.7	32.4	N/A	N/A
WBCs	5.14-13.38	7.46	N/A	N/A
Neutrophils	1.54-7.92	3.25	N/A	N/A
Eosinophils	0.03-0.53	0.20	N/A	N/A
Basophils	0.01-0.06	0.03	N/A	N/A
Monocytes	0.19-0.94	0.81	N/A	N/A

Lymphocytes	1.13-5.52	3.14	N/A	N/A
Platelets	202-403	314	N/A	N/A
TEST	**NORMAL** (specific for age)	**Prior**	**Clinical Day**	**Correlation to current health status & comment on trending**
Glucose	60-99	105	N/A	Glucose levels can be increased with corticosteroid use. Patient is prescribed steroids due to diagnosis of pneumonia. This could account for the abnormal glucose level.
Na^{+}	136-145	140	N/A	N/A
Cl^{-}	98-107	107	N/A	N/A
K^{+}	3.5-5.1	3.2	N/A	Hypokalemia is a side effect of corticosteroids. Patient is prescribed steroids due to diagnosis of pneumonia. This could account for the abnormal potassium level.
Ca^{++}	8.5-10.1	9.7	N/A	N/A
Phosphorus	2.5-4.9	3.5	N/A	N/A
Albumin	3.4-5	3.8	N/A	N/A
Total Protein	6.4-8.2	7.2	N/A	N/A
BUN	7-18	6	N/A	BUN levels can be decreased in dehydration. Patient's mother states that client was not tolerating fluids prior to admission. This could account for the abnormal BUN levels.

				Patient is now receiving intravenous fluids.
Creatinine	0.7-1.30	0.45	N/A	Creatinine levels can be decreased in dehydration. Patient's mother states that client was not tolerating fluids prior to admission. This could account for the abnormal Creatinine levels. Patient is now receiving intravenous fluids.
TEST	**NORMAL** (specific for age)	**Prior**	**Clinical Day**	**Correlation to current health status & comment on trending**
Liver Function Tests	AST (15-37) ALT (12-78)	32 25	N/A	N/A
Urinalysis	Yellow/clear	Dark	N/A	Urine can appear dark when patients are dehydrated. Patient's mother states that client was not tolerating fluids prior to admission. This could account for the abnormal urine appearance. Patient is now receiving intravenous fluids.
Urine specific gravity	1.003-1.035	1.003	N/A	N/A
Urine pH	5-7	6.0	N/A	N/A
Creatinine clearance	N/A	N/A	N/A	N/A
Other Labs:				
Bands	0.0-10.0	12.0	N/A	Bands are present in severe

				infections. Client is diagnosed with M. pneumoniae. This could account for the drastic increase in bands.

Reference:

Sorenson, M., Quinn, L. & Klein, D. (2017). *Pathophysiology: Concepts of Human Disease*. Hoboken, NJ: Pearson

Diagnostic Studies:

TEST & RESULTS	Correlation to current health status (if abnormal)
Chest x-ray: 10/16/2019	Chest x-ray indicated by dyspnea and a history of Asthma. Findings include AP portable, perihilar opacities of possible perihilar pneumonitis, and perihilar bronchiolar wall thickening of bronchiolitis.
CT Scan/MRI:	N/A
Biopsy/Scope:	N/A
Cultures:	Urine culture showed no significant growth No enteric pathogens recovered in stool sample No growth in the blood culture after 5 days Strep culture negative MRSA screening negative
Other:	Patient's respiratory pathogen panel detected rhinovirus/enterovirus and mycoplasma pneumoniae

List of active orders on this patient:

ORDER	COMMENTS/RESULTS/COMPLETION
Activity:	Up ad lib

Diet/Nutrition:	Patient is on a regular diet, but is not consuming much food. Patient is drinking adequate amounts of fluid.
Frequent Assessments:	Respiratory assessments
Labs/Diagnostic Studies:	Chest x-ray indicated by dyspnea and a history of Asthma. Findings include AP portable, perihilar opacities of possible perihilar pneumonitis, and perihilar bronchiolar wall thickening of bronchiolitis. Laboratory results unremarkable.
Treatments:	Treatment modality includes macrolide antibiotics and glucocorticoids.
New Orders for Clinical Day	
ORDER	**COMMENTS/RESULTS/COMPLETION**
No new orders for clinical day.	

Teaching & Learning: Identified teaching need (be specific):

Patient should be educated on preventing asthma attacks. Due to client's age, teaching should be provided to the primary caregiver. Written and pictorial information should be provided. Education should be provided in a private, quiet setting for optimal learning. Avoiding the known triggers of asthma should be an important education topic. These include: pollen, dust mites, mold spores, pet dander, cold air, smoke, GERD, and certain medications (Mayo Clinic, 2019). After teaching, I would utilize the teach back method to assess their comprehension of the learning.

Reference:

Mayo Clinic. (2019). Asthma. Retrieved October 24, 2019, from https://www.mayoclinic.org/diseases-conditions/asthma/symptoms-causes/syc-20369653

Developmental Assessment: Be sure to HIGHLIGHT the achievements of any milestone if noted in your child. Be sure to circle any use of diversional activity if utilized during clinical. There should be a minimum of 3 descriptors under each heading.

Age Appropriate Growth & Developmental Milestones

1. Climbs well
2. Runs easily
3. Bends over easily without falling

Age Appropriate Diversional Activities

1. Riding a tricycle
2. Plays ball
3. Finger-painting

Psychosocial Development:

Which of Erikson's stages does this child fit?

Autonomy vs. Shame and Doubt

What behaviors would you expect?

Separates from parent/caregiver
Negativism abounds
Imitates adults
Achieves autonomy and self-control

What did you observe?

Patient imitated nurse by placing thermometer under mother's armpit to check her temperature.

Cognitive Development:

Which stage does this child fit, using Piaget as a reference?

Sensorimotor: Pre-operational

What behaviors would you expect?

Increased object permanence
Plays make believe with dolls, animals, and people
Understands requests and is capable of following simple commands

What did you observe?

Patient is able to follow staff commands (medication administration, vitals, etc.)
Patient recognized mother's phone was behind her back

Vocalization/vocabulary:

Development expected for child's age and any concerns?

Vocalization and vocabulary is appropriate for age level. No immediate concerns.

Any concerns regarding growth and development?

No concerns regarding growth and development.

Reference:

Ricci, S., Kyle, T. & Carmen, S. (Eds). (2017). *Maternity and Pediatric Nursing*. Philadelphia, PA: Wolters Kluwer

Potential Complications that can occur because of this disease/disorder:

Potential Complication	Signs/Symptoms	Preventative Nursing Actions
1. Respiratory failure	• Shortness of breath • Rapid breathing • Confusion • Loss of consciousness • Sleepiness • Heart arrythmia • Productive cough • Fatigue • Wheezing	• Respiratory assessments • Monitor vital signs • Apply supplemental oxygen as needed • Flu vaccine • Pneumonia vaccine • Continuous pulse oximetry • Nebulizer treatments • Evaluate ABG's

2. Pleural effusion	• Cough • Pleuritic chest pain • Rapid breathing • Shortness of breath • Dyspnea • Orthopnea	• Pneumonia vaccine • Respiratory assessments • Monitor vital signs • Apply supplemental oxygen as needed • Continuous pulse oximetry • Use of incentive spirometry • Turn and reposition patient for optimal lung expansion

Reference:

Hinkle, J. L. & Cheever, K. H. (2018). *Brunner & Suddarth's Textbook of Medical Surgical Nursing*. (14th ed.). Philadelphia, PA: Wolters Kluwer

Nursing Care Plan

Nursing Diagnosis **Prioritize-most important to least**	Outcomes (Patient/Family will: ….. and **give time line**) **(MUST BE MEASURABLE)**	Nursing Interventions **With rationale (At least 2 nursing interventions per outcome)**	Evaluation of **EACH** outcome

Ineffective airway clearance Related to: Increased sputum production AEB (as evidenced by): Ineffective cough	1. Patient will maintain clear, open airways until discharge, as evidenced by normal rate and depth of respirations 2. Patient will be able to cough up secretions after every breathing treatment today	1a. Assess respirations, noting the rate, rhythm, depth, and use of accessory muscles Rationale: Increase in respiratory rate may be a compensatory response to obstruction 1b. Auscultate the lungs, noting adventitious lung sounds Rationale: Crackles are heard when fluid is present 2a. Assess cough for effectiveness and productivity Rationale: Coughing is the most effective way to remove secretions 2b. Observe the characteristics of the sputum Rationale: A sign of infection is discolored sputum	Outcomes Met/ Partially met/ Not met (with Explanation) 1. Patient exhibited an increased respiratory rate during clinical shift. Shallow breathing noted. Goal not met. 2. Patient did not receive a breathing treatment during clinical shift today. Goal not met. What next? Patient will continue to be monitored. Frequent respiratory assessments will be performed. The use of steroids and corticosteroids will

			also be continued. Patient should wear a continuous pulse ox when in the room.

Nursing Care Plan

Nursing Diagnosis **Prioritize-most important to least**	Outcomes (Patient/Family will: ….. and **give time line**) **(MUST BE MEASURABLE)**	Nursing Interventions **With rationale (At least 2 nursing interventions per outcome)**	Evaluation of **EACH** outcome

Impaired gas exchange Related to: Collection of mucus in the airways AEB (as evidenced by): Dyspnea	1. Patient maintains optimal gas exchange for the 6 hour clinical shift, as evidenced by oxygen saturation of 90% or greater, relaxed breathing, and baseline HR for the patient 2. Patient maintains clear lung fields for next 12 hours	1a. Monitor for changes in the patient's HR and BP Rationale: With hypoxia and hypercapnia, HR and BP rise 1b. Use pulse oximetry to monitor oxygen saturation Rationale: Pulse oximetry is a helpful tool to detect changes in oxygenation 2a. Assess respirations noting rate, rhythm, use of accessory muscles, and dyspnea on exertion Rationale: Patients will adapt their breathing patterns over time to facilitate gas exchange. Rapid and shallow breathing patterns effect gas exchange.	Outcomes Met/ Partially met/ Not met (with explanation) 1. Patient's oxygen saturation was 97% on room air. Patient did have an increased heart and rate and breathing pattern. Goal partially met. 2. Patient's respiratory rate was increased, but clear lung sounds was auscultated bilaterally. Goal met. What next? Frequent respiratory assessments should be performed to

			detect any changes in status. Supplemental oxygen should be applied if patient's oxygen saturation drops. Vital signs should be closely monitored.

Reference:
Gulanick, M. & Myers, J. (2014). *Nursing Care Plans: Diagnoses, Interventions, and Outcomes*. Philadelphia, PA: ELSEVIER

N433 Medication Form

Patient Initials: L. M. Patient Age: 3 years old Patient Weight (in kg): 13.3 kg

Scheduled Medications

Medication Trade & Generic Names, Pharmaceutical Class Action of the medication (how does the medication work in the body <u>in your own words</u>)	Dose, route, & frequency ordered for this patient	Concentration Available Why is this pt. taking this?	Calculate the safe dose ranges by what is given as a safe dose times the child's weight. Do this for a 24 hour period. (Show Calculations) Is this dose safe for this pt.?	<u>Nursing Considerations</u> (<u>at least 3</u> & must be appropriate for this patient, & include any labs that need to done to monitor pt. while taking this medication) <u>Contraindications</u> <u>Common side effects</u>
Proventil (Albuterol Sulfate) <u>Mechanism of Action:</u> Causes bronchodilation by acting on the pulmonary receptors <u>Pharmaceutical Class:</u> Beta-adrenergic agents, inhaled, short-acting	<u>Dose:</u> 3 mL <u>Route:</u> Inhalant <u>Freq:</u> Q4 hours	<u>Concentration:</u> 2.5mg/3mL <u>Why?</u> Management of Asthma and prevention of acute bronchospasm	N/A	<u>Nursing Considerations:</u> Assess arterial blood gases (ABG) Evaluate for therapeutic response Assess lung sounds, heart rate, and rhythm <u>Contraindications:</u> Hypersensitivity <u>Common side effects:</u>

				Tremors Anxiety Restlessness
Zithromax (Azithromycin) <u>Mechanism of Action:</u> Binds to 50S ribosomal subunits of susceptible bacteria and suppresses protein synthesis <u>Pharmaceutical Class:</u> Macrolide antibiotics	<u>Dose:</u> 5mg/kg x 13.3kg = 66.6 mg 66.6 mg/100 x 5 = 3.33 3.33 mL <u>Route:</u> Oral suspension <u>Freq:</u> Once, Daily	<u>Concentration:</u> 100mg/5mL <u>Why?</u> Mild to moderate infections of the respiratory tract (Mycoplasma pneumoniae)	10mg/kg on day 1 10 x 13.3 = 133 mg 5mg/kg x 4 days 5 x 13.3 = 66.5 mg Safe dose range for this patient is 133 mg on the first day and 66.5 mg per day for the next 4 days Yes, this a safe dose range for this patient	<u>Nursing Considerations:</u> Monitor I & O Assess hepatic studies (AST, ALT) Assess renal studies (Urinalysis, protein, blood) <u>Contraindications:</u> Hypersensitivity Jaundice Hepatitis <u>Common Side Effects:</u> Dizziness Headache Nausea Diarrhea

Pulmicort (Budesonide) Mechanism of Action: Produces vasoconstriction of arterioles thus decreasing fluid exudation Pharmaceutical Class: Glucocorticoid	Dose: 2 mL Route: Inhalant Freq: BID	Concentration: 0.25mg/2mL Why? Nasal congestion	N/A	Nursing Considerations: Assess respiratory status Emphasize importance of increasing oral fluids Know that corticosteroid use can mask signs of infection Contraindications: Hypersensitivity Electrolyte imbalances Dehydration Common Side Effects: Headache Dizziness Hypotension
Solu-Medrol (Methylprednisolone) Mechanism of Action: Decreases inflammation by suppression of migration	Dose: 15 mg = 0.38 mL Route: IV push Freq: Q6 hours	Concentration: 40mg/mL Why?	1-2 mg/kg per 24 hours 13.3 x 1 = 13.3 mg per dose 13.3 x 4 times a day = 53.2 mg	Nursing Considerations: Monitor for potassium depletion Assess for edema or HTN Assess mental status: affect, mood, and

polymorphonuclear leukocytes and fibroblasts Pharmaceutical Class: Glucocorticoid		Severe inflammation	Max dose is 60mg/24 hours Yes, this is a safe dosage for the patient	behavior Contraindications: Hypersensitivity Neonates Common Side Effects: Depression Flushing Sweating
Singulair (Montelukast) Mechanism of Action: Inhibits leukotriene formation Pharmaceutical Class: Leukotriene receptor antagonists	Dose: 4 mg = 1 tab Route: Oral Freq: HS, Daily	Concentration: 4mg/1 tablet Why? Management of chronic Asthma	Maximum dosage is 4mg/day Client takes 4mg/day Yes, this is a safe dosage for the patient	Nursing Considerations: Monitor for behavioral changes, suicidal ideations, or other neuropsychiatric reactions Monitor hepatic studies (ALT, AST) Monitor for therapeutic response: ability to breathe easier Contraindications: Hypersensitivity Pregnancy Common Side Effects:

				Dizziness Fatigue Headache Abdominal pain
Tylenol (Acetaminophen) Mechanism of Action: Blocks pain impulses peripherally that occur in response to inhibition of prostaglandins synthesis Pharmaceutical Class: Analgesic/antipyretic/nonsalicylate	Dose: 15mg/kg x 13.1 = 195.2 mg 195.2/160 x 5 = 6.1 mL 6.1 mL Route: Oral Freq: Q4 hours, PRN	Concentration: 160mg/5mL Why? Pain or fever over 38.0 C	15 mg/kg/dose 15 x 13.1 = 196.5 mg/dose 196.5 x 4 = 786 mg/24 hours Maximum dose is 4000mg/day Do not exceed 5 doses in 24 hours Yes, this is a safe dosage for the patient	Nursing Considerations: Assess hepatic studies (AST, ALT) Assess renal studies (Urinalysis, protein, blood) Assess blood studies (PT/INR, PTT, H & H) Contraindications: Hypersensitivity Common Side Effects: Nausea Vomiting Abdominal Pain

Reference:
Skidmore, L. (2018). *Mosby's 2018 Nursing Drug Reference*, (31st ed.). St. Louis, MO: ELSEVIER