Preconference Form

Student Name: Carolina Rodriguez

Medical Diagnosis/Disease: Chronic Obstructive Pulmonary Disease (COPD)

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

Anatomy and Physiology

Normal Structures

- Upper Respiratory Tract: Filters, warms, and humidifies incoming air. Includes the nose, pharynx, larynx, and upper trachea.
- Lower Respiratory Tract: Involved in gas exchange.
- Trachea & Bronchi: Large, cartilaginous airways that transport air into the lungs. They have cilia and mucus-secreting cells to trap and sweep foreign particles out.
- Bronchioles: Smaller airways that lack cartilage and contain smooth muscle, allowing for changes in diameter (bronchoconstriction/bronchodilation).
- Alveoli: Tiny, thin-walled sacs surrounded by capillaries. These are the primary sites of gas exchange. They are lined with a substance called surfactant to prevent their collapse.
- Diaphragm: The dome-shaped primary muscle of respiration, located at the base of the chest cavity.
- Lungs: Spongy organs that contain all the lower airways and alveoli, housed within the pleural membranes.
- Visceral Pleura (Inner Layer): This membrane adheres tightly to the surface of the lungs, including all the fissures (the lines that divide the lobes). "Visceral" refers to the internal organs

Pathophysiology of Disease

- COPD is centered on chronic inflammation in the airways and lungs, which leads to persistent airflow limitation. This inflammation is enhanced by the inhalation of smoking or noxious particles/gases, triggering the activation of inflammatory cells like macrophages, neutrophils, and CD8+ T-lymphocytes that release various mediators. Airflow limitation is caused by a complex combination of mechanisms: a loss of elastic recoil due to alveolar wall destruction (emphysema) from an imbalance between proteases (like elastase) and antiproteases (alpha-1 antitrypsin); and an increase in airway resistance from goblet cell hyperplasia and mucous gland hypertrophy leading to excess mucus, bronchoconstriction, and peribronchiolar fibrosis (chronic bronchitis).

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs

- CBC: Checks for signs of infection (elevated WBC count during an exacerbation) and polycythemia (elevated Hgb/Hct) which can develop chronically due to the body trying to compensate for low O2 levels.
- Alpha-1 antitrypsin deficiency screen: Screening test for the genetic deficiency that can cause early-onset COPD, especially in non-smokers

Additional Diagnostics

- ECG: shows sign of right HF
- Sputum for culture and sensitivity can be done if an infection is suspected
- CXR: It may show signs of hyperinflation (air trapping) and a flattened diaphragm. It's also crucial for ruling out complications like pneumonia or heart failure.

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

Contributing Risk Factors

- Gender: slightly more common in men
- Aging: Results in stiffening of the chest wall and decreases in exercise tolerance. The lungs gradually lose their elastic recoil. The thoracic cage becomes stiff and rigid, and the ribs are less mobile. The shape of the rib cage gradually changes because of the increased residual volume (RV), causing it to enlarge and become more rounded. Decreased chest compliance and loss of elastic recoil together affect the mechanical aspects of ventilation and increase the WOB. The number of functional alveoli decreases as peripheral airways lose supporting tissues. Over time, the surface area for gas exchange decreases and the PaO2 decreases. Changes in the elasticity of the lungs reduce the ventilatory reserve. These age-related changes are similar to those seen in the patient with COPD.

Signs and Symptoms

- Dyspnea: SOB, often progressive and worse during exertion
- Chronic cough: often productive of sputum
- Sputum production: mucopurulent in exacerbation
- Wheezing and chest tightness
- Use of accessory muscles during respiration

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures

Non-surgical

- Smoking cessation
- Oxygen therapy
- Respiratory care: breathing exercises like pursed lip breathing and diaphragmatic breathing
- Nutritional therapy: due to malnutrition

Surgical

Lung Volume Reduction Surgery (LVRS): reduces the size of the lungs by removing some of the diseased lung tissue so that the remaining healthy lung tissue can perform better. Reducing the diseased lung tissue results in decreased airway obstruction and increased room for the remaining alveoli (small air sacs at the end of each bronchiole) to expand and function. Besides improving lung and chest wall mechanics it can allow the diaphragm to return to its normal shape, which allows more efficient breathing

Prevention of Complications

(What are some potential complications associated with this disease process)

- Acute Respiratory Failure: severe ventilation/perfusion mismatch due to worsened airflow obstruction and mucus plugging
- Pneumonia: mucus stasis and impaired immune function in the lung create an ideal breeding ground for bacteria
- Cardiac dysrhythmias: caused by severe hypoxemia, acidosis, and electrolyte imbalance.

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

Anticipated Medication Management

- Bronchodilator therapy: relaxes bronchial smooth muscle in the airway and improves the ventilation of the lungs, reducing the degree of breathlessness. This is the first-line treatment for most patients. Short acting beta agonists and short acting muscarinic antagonists like albuterol are used during exacerbation for acute symptom relief. Long acting beta agonists and long acting muscarinic antagonists like salmeterol or tiotropium are used daily to control and prevent exacerbations

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

Non-Pharmacologic Care Measures

- Pursed-lip breathing: helps slow expiration, prevents air trapping, controls rate/depth of breathing
- Diaphragmatic breathing: strengthens diaphragm muscles
- Positioning: sit up, lean over table or pillow to maximize chest expansion
- Rest/Activity pacing: balance rest periods with activity to manage fatigue and conserve energy
- Hydration: to thin secretions and make them easier to cough up
- Avoidance of irritants: smoking, air pollution, occupational exposures

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

What stressors might a patient with this diagnosis be experiencing?

- Anxiety and fear due to the feeling of not being able to breathe
- Social isolation due to symptoms like chronic cough, sputum, and dyspnea
- Grief and loss due to loss of independence, inability to work, and reduced quality of life
- Guilt due to smoking

Client/Family Education

List 3 potential teaching topics/areas

- Breathing and airway exercises: pursed-lip breathing and airway clearance techniques like huff cough
- Medications: types of medications, establishing a schedule, correct use of inhaler/spacer/nebulizer, reason for use of oxygen equipment
- Management plan: reduce risk factors like smoking cessation, recognition of signs and symptoms, exercising like walking, need to report any changes in condition to HCP

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)

- **Respiratory therapist:** administer oxygen therapy, provide chest physiotherapy, monitor respiratory status
- **Dietician:** assess nutrition status, recommends interventions to meet patients nutritional needs, provide instructions for diet changes as needed
- **Physical therapist:** assess current level of fitness, assist with ambulation and exercise
- **Social worker:** assist with obtaining medical equipment after discharge, assist with financial resources
- **Nurse:** conducts a thorough nursing assessment, administers medications, primary educator, implements overall plan, constantly evaluates the patients response

Preconference Form

Student Name: Carolina Rodriguez

Medical Diagnosis/Disease: Chronic Obstructive Pulmonary Disease (COPD)

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

Anatomy and Physiology

Normal Structures

- Parietal Pleura (Outer Layer): This membrane lines the inner surface of the chest wall, the mediastinum (the space between the lungs), and the upper surface of the diaphragm. "Parietal" refers to the wall of a cavity
- Between the visceral and parietal layers is a potential space called the pleural cavity or pleural space. This space normally contains only a few milliliters (about 10–20 mL) of clear, watery pleural fluid. The fluid acts as a lubricant, allowing the two pleural membranes to glide smoothly over each other as the lungs expand and contract during breathing, minimizing friction
- Alveolar sacs: The walls of the alveoli contain elastic fibers which are crucial for the lungs' ability to recoil passively during expiration, pushing air out. Their extremely thin walls form the alveolar-capillary membrane, where gas exchange takes place.They provide the vast surface area necessary for oxygen (O2) to diffuse into the blood and carbon dioxide (CO2) to diffuse out
- Bulla: A large, permanent, air-filled space in the lung that results from the destruction of multiple adjacent alveoli. They are formed when the destructive activity of elastase completely breaks down the walls of multiple small, neighboring alveolar sacs, merging them into one large, inefficient space. Bullae are most common in the upper lobes of the lungs.

Pathophysiology of Disease

- This structural damage results in trapped air and hyperinflation, which flattens the diaphragm and significantly contributes to dyspnea. The impaired ventilation-perfusion matching and alveolar destruction leads to impaired gas exchange, which manifests as CO2 retention and hypoxemia. Furthermore, COPD is a systemic disease where chronic inflammation can cause systemic effects like skeletal muscle dysfunction and cardiovascular disease, and the pulmonary changes can lead to pulmonary hypertension and cor pulmonale. An exacerbation is a temporary worsening of respiratory symptoms (dyspnea, cough, sputum) that may be caused by infection (viral/bacterial) or environmental factors, indicating a period of heightened inflammation and further functional decline.

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs

- Arterial Blood Gases: helps identify the severity of exacerbation by assessing abnormal oxygenation, it measures oxygenation and ventilation status, COPD causes hypoxemia(lox oxygen in blood) and hypercapnia(high CO2 in blood stream) leading to respiratory acidosis (low pH)

Additional Diagnostics

- COPD Assessment Test or Clinical COPD Questionnaire: help assess symptoms
- Spirometry: confirms the diagnosis, confirms the presence of airflow obstruction and determines severity of COPD; a ratio less than 70% after a bronchodilator confirms COPD

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

Contributing Risk Factors

- **Smoking:** major and most common; causes hyperplasia of cells, including goblet cells, increasing mucous production. Hyperplasia reduces airway diameter and makes it harder to clear secretions. It also reduces ciliary activity and may cause actual loss of cilia. Smoking causes abnormal dilation of the distal air space and destruction of alveolar walls
- **Infection:** People who smoke and have HIV have faster development of COPD, tuberculosis is also a risk factor
- **Asthma**
- **Air Pollution**
- **Occupational Chemicals and Dust**
- **Genetics**
- **Alpha-1 (a1) antitrypsin deficiency (AATD)** is an autosomal recessive disorder that may eventually affect the lungs and liver. AAT is a protein made by the liver and normally found in the lungs. The main function of AAT is to protect lung tissue from attack by proteases during inflammation related to smoking and infections. Few people are tested for AATD until symptoms are present and they are seeking medical care. About 2% of all people diagnosed with COPD in the US have undetected AATD. Smoking speeds the disease process in these patients.

Signs and Symptoms

- Barrel chest: from chronic hyperinflation
- In late stages of exacerbation: cyanosis, fatigue, weight loss, signs of right sided heart failure (cor pulmonale) like neck vein distention and peripheral edema
- Tripod position: hands on knees

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures

[redacted]surgical

- **Bronchoscopic Lung Volume Reduction:** Involves placing 1-way valves, by bronchoscopy, in the airways leading to the diseased parts of the lung. The valves allow air to leave the lung during exhalation and prevent air from entering during inspiration. By completely occluding a specific area of the lung, this collapses that area. BLVR

produces a result similar to LVRS. Pneumothorax is a common complication

- **Bullectomy:** 1 or more very large bullae are removed. The removal of bullae helps decrease WOB
- **Lung Transplant:** It helps a very small number of patient with advanced COPD. Although single lung transplant is most common because of a shortage of donors, a bilateral transplant can be done

Prevention of Complications

(What are some potential complications associated with this disease process)

- Cor Pulmonale (Right sided heart failure): worsening of pulmonary hypertension due to chronic vasoconstriction from low oxygen. the right side of the heart struggles to pump against this pressure, leading to failure
- Acid based imbalances: hypercapnia leads to respiratory acidosis; if not treated can severely depress the CNS and lead to confusion or coma
- Pneumothorax (collapsed lung): large air sacs (bullae) associated with emphysema can rupture due to coughing or mechanical ventilation, causing air to leak into the pleural space

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

Anticipated Medication Management

- Inhaled corticosteroids like fluticasone are used in combination with LABAs for patient with more severe disease and frequent exacerbations
- Systemic corticosteroids like prednisone are used short term to treat the acute inflammation during an exacerbation
- Antibiotics are prescribed if COPD exacerbation is suspected to be caused by a bacterial respiratory infection (often indicated by increased sputum volume and purulence)

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

Non-Pharmacologic Care Measures

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

What stressors might a patient with this diagnosis be experiencing?

Client/Family Education

List 3 potential teaching topics/areas

-
-
-

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)

Ventilation and Diffusion

The primary goal of the respiratory system is gas exchange between inhaled air and the blood, achieved through the processes of ventilation and diffusion. Ventilation is the mechanical process of breathing: Inspiration is an active process where the diaphragm and intercostal muscles contract to expand the chest volume, creating negative pressure to draw air in. Expiration is typically a passive process driven by the elastic recoil of the lungs and chest wall, which forces air out as the muscles relax. Diffusion is the actual transfer of gases across the thin alveolar-capillary membrane: Oxygenation occurs as oxygen moves from the high concentration in the alveoli into the blood to bind with hemoglobin, while Carbon Dioxide Elimination happens simultaneously as CO_2 diffuses from the blood into the alveoli to be exhaled. For this system to be efficient, Ventilation-Perfusion (V/Q) Matching must occur, ensuring that adequate air supply (ventilation) meets adequate blood flow (perfusion) in the lung; a mismatch in V/Q is a key driver of gas imbalance in respiratory diseases.

Nursing Problem Worksheet

Name: Carolina Rodriguez

Anticipated Patient Problem and Goals	**Relevant Assessments** (Prework) What assessments pertain to your patient's problem? Include frequencies	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Problem: Impaired gas exchange Reasoning: use of oxygen, smoking history Goal: Patient's pulse ox will remain greater than or equal to 90% by EOC Goal: RR will remain between 18-20 by EOC	Assess pulse ox q 2 hours	Maintain oxygen throughout care
	Assess RR q 2 hours	Practice breathing exercises with patient (pursed lip breathing and diaphragmatic breathing)
	Assess usage of IS q hour	Encourage use of IS 10x an hour
	Assess lung sounds bilaterally daily q shift	Administer prescribed antibiotic • Ceftriaxone IVP 1–2 g every 12–24 hr
	Assess WOB and use of accessory muscles q 2 hours	Elevate HOB between 30-90 degrees to ease WOB

Anticipated Patient Problem and Goals	**Relevant Assessments** (Prework) What assessments pertain to your patient's problem? Include frequencies	**Multidisciplinary Team Intervention** (Prework) What will you do if your assessment is abnormal?
Problem: Acute pain Reasoning: muscle fatigue due to use of accessory muscles with increased WOB Goal: Patient will state 3/10 pain by EOC Goal: Patient will perform ADLs with minimal rest periods in between by EOC	Assess effect on activity level before and after ADLs or ambulation q shift	Prioritize rest periods between activities to minimize muscles fatigue and pain
	Assess anxiety and restlessness during interactions q shift	Use therapeutic communication and encourage a calm environment
	Assess patient knowledge of pain triggers daily q shift	Educate patient to pace activities and avoid sudden movements
	Asses patient pain with numeric pain scale q 2 hours	Administer prescribed medication • Acetaminophen PO 325–650 mg every 6 hr
	If patient exhibits any grimacing, guarding or moaning, assess pain location and type with description (sharp, dull, aching, stabbing) q shift and upon report of pain	Apply non-pharmacological comfort measures like heat or cold therapy, for example on strained accessory muscles

ACTIVE LEARNING TEMPLATE: Medication

STUDENT NAME Carolina Rodriguez

MEDICATION Acetaminophen (Tylenol) REVIEW MODULE CHAPTER

CATEGORY CLASS Therapeutic: Antipyretic, non-opioid analgesics

PURPOSE OF MEDICATION

Expected Pharmacological Action

Inhibits synthesis of prostaglandins that may serve as mediators of pain and fever, primarily in the CNS. Has no significant anti-inflammatory properties or GI toxicity

Therapeutic Use

- **Pain relief (Analgesic):** Acetaminophen is effective for various common types of mild to moderate pain. It can be used for conditions such as: headaches and muscle aches, menstrual cramps, toothaches and backaches, pain from osteoarthritis, pain from colds and sore throats
- **Fever reduction (Antipyretic):** Acetaminophen is a common fever reducer, helping to lower elevated body temperatures associated with infections and illnesses.

Complications

CV: hypertension (IV), hypotension (IV). **Derm:** ACUTE GENERALIZED EXANTHEMATOUS PUSTULOSIS, rash, STEVENS-JOHNSON SYNDROME (SJS), TOXIC EPIDERMAL NECROLYSIS, urticaria. **F and E** hypokalemia (IV). **GI:** ↑ liver enzymes, constipation (↑ in children) (IV), HEPATOTOXICITY (WITH HIGHER DOSES), nausea (IV), vomiting (IV). **GU:** renal failure (high doses/chronic use). **Hemat:** neutropenia, pancytopenia. **MS:** muscle spasms (IV), trismus (IV). **Neuro:** agitation (↑ in children) (IV), anxiety (IV), fatigue (IV), headache (IV), insomnia (IV). **Resp:** atelectasis (↑ in children) (IV), dyspnea (IV)

Contraindications/Precautions

Contraindications: You MUST NOT take this if you have: a known allergy to acetaminophen or severe liver problems or active liver disease; Check the Label: if you are allergic to alcohol, sugar, or certain dyes (like yellow dye #5), be sure the specific acetaminophen product you buy does not contain them.
Precautions: Liver or Kidney Issues: if you have any liver or kidney problems, you will likely need a lower dose or need to take it less often; Alcohol Use: if you drink alcohol regularly (alcoholism) or have severe malnutrition, your doctor needs to know. You are at a much higher risk of liver damage; Pregnancy: if you are pregnant, talk to your doctor first. Only use it if clearly needed.

Interactions

- **Blood Thinners:** If you take the blood thinner warfarin (like Coumadin), taking high doses of acetaminophen for a long time can increase your risk of bleeding
- **Alcohol & Liver:** Your liver processes this drug. Avoid alcohol completely, and tell your doctor if you have liver problems or take any other medications that might affect your liver (like certain drugs for TB, seizures, or other strong medicines)
- **Other Pain Pills:** Do not take acetaminophen with other pain pills like NSAIDs (ibuprofen, naproxen) for a long time, as this can harm your kidneys
- **Effectiveness:** Acetaminophen may not work as well if you take it with certain seizure or TB medications

Evaluation of Medication Effectiveness

- Relief of mild to moderate pain.
- Reduction of fever

Medication Administration

PO (Adults and Children >12 yr): 325–650 mg every 6 hr or 1 g 3–4 times daily or 1300 mg every 8 hr (not to exceed 3 g or 2 g/24 hr in patients with hepatic/renal impairment)

Nursing Interventions

Before giving the pill

- Check the Liver Risk: Ask the patient about their alcohol habits and if they have had enough to eat (malnutrition). These patients are at a higher risk of liver damage

While patient is taking it

- Watch for Rash: Check the skin regularly. Stop the drug right away and notify a nurse or doctor if you see any new rash, blisters, or skin peeling (especially with a fever). This can be a sign of a serious, life-threatening reaction.
- Check Effectiveness:
- For Pain: Ask about the patient's pain level before and about 30–60 minutes after giving the medicine
- For Fever: Check the patient's temperature and look for signs that they are feeling better (like less sweating or feeling less sick)

Client Education

- **Don't Overdose:** Never exceed prescribed amount. Excessive use risks serious liver, kidney, or heart damage
- **Check All Labels:** Acetaminophen is in many products; never take more than one product containing it at the same time
- **Avoid Alcohol:** Combining the drug with 3+ alcoholic drinks per day significantly raises the risk of liver damage
- **Stop Use:** Call your provider if you develop a rash, or if pain lasts more than 10 days (adults) or fever lasts over 3 days
- Do Not Take for Longer than directed
- **Diabetes Alert:** If you have diabetes, acetaminophen may alter blood glucose monitoring results. Notify your healthcare provider if you notice changes

STUDENT NAME Carolina Rodriguez

MEDICATION Ceftriaxone (Rocephin) REVIEW MODULE CHAPTER

CATEGORY CLASS Therapeutic: antibiotic
Pharmacologic: third generation cephalosporins

PURPOSE OF MEDICATION

Expected Pharmacological Action

Its primary action is bactericidal, meaning it directly kills the bacteria. It achieves this by being a β-lactam antibiotic that inhibits the synthesis of the bacterial cell wall. Specifically, it binds to essential proteins (called penicillin-binding proteins or PBPs) within the bacterial structure. This binding stops the final cross-linking of the cell wall layers, ultimately weakening the cell wall until the bacterial cell breaks open and dies. Ceftriaxone is valued for its broad spectrum of activity against many Gram-negative and some Gram-positive bacteria, and critically, its ability to penetrate the central nervous system (CNS), which is essential for treating brain and spinal infections

Therapeutic Use

Ceftriaxone is a highly versatile antibiotic used to treat numerous moderate to severe bacterial infections. Its key indications include serious infections like bacterial meningitis, septicemia (blood infection), and complicated forms of pneumonia (hospital-acquired and community-acquired). It is also widely used for difficult infections such as bone and joint infections, intra-abdominal infections, and complicated urinary tract infections (UTIs). Furthermore, it is a first-line treatment for certain sexually transmitted infections, notably uncomplicated gonorrhea, and is an option for treating Lyme disease. Finally, due to its efficacy and ease of once-daily dosing, it is often administered as pre-operative prophylaxis to prevent surgical site infections

Complications

Derm: rash, urticaria. **GI:** CLOSTRIDIODES DIFFICILE-ASSOCIATED DIARRHEA (CDAD), cholelithiasis, diarrhea, gallbladder sludging, pancreatitis. **GU:** acute renal failure, urolithiasis. **Hemat:** bleeding, eosinophilia, hemolytic anemia, leukopenia, thrombocytosis. **Local:** pain at IM site, phlebitis at IV site. **Neuro:** encephalopathy, SEIZURES (HIGH DOSES). **Misc:** HYPERSENSITIVITY REACTIONS (INCLUDING ANAPHYLAXIS), superinfection

Medication Administration

IM, IV (Adults):

- Most infections: 1–2 g every 12–24 hr
- Gonorrhea: 500 mg IM (single dose)
- Meningitis: 2 g every 12 hr.
- Perioperative prophylaxis: 1 g 0.5–2 hr before surgery (single dose).

Contraindications/Precautions

Contraindications: Allergies: if you've ever had a bad reaction to ceftriaxone or other similar antibiotics (called cephalosporins), if you have a severe allergy to penicillin; Infants & Calcium IVs: DO NOT give this to newborns (up to 28 days old) if they need IVs that contain calcium, as the medicine can mix with the calcium and cause blockages in the body, DO NOT give this to premature babies (up to 41 weeks post-conception), DO NOT give this to newborns with jaundice (high bilirubin), as it can harm the brain.
Precautions: Organ Problems: if you have severe liver AND kidney problems, your doctor may need to lower the dose because you could have serious side effects affecting the brain; Gut Issues: tell your doctor if you have a history of serious stomach/gut problems, especially colitis (severe inflammation of the colon); Children: in children, there is a higher risk of kidney stones and kidney problems.

Nursing Interventions

Before giving the first dose

- Check for Allergies: Ask the patient if they have ever had a bad reaction to penicillin or other antibiotics like ceftriaxone. (A severe reaction to penicillin means they should not get this drug).
- Get Cultures: A nurse will collect samples (like blood, urine, or wound fluid) for testing before giving the first dose. This helps the doctor make sure the medicine is right for the infection.
- Watch Newborns: For infants, especially premature babies, a nurse will check them for jaundice (yellow skin/eyes), as this drug can make it worse.

While patient is taking It

- Monitor the Infection: Check the patient's vitals (temperature) and look closely at the wound, urine, or cough to see if the infection is improving.
- Watch for Allergic Reactions: Look for signs of a severe reaction: rash, itching, swelling of the throat, or wheezing. If this happens, stop the medication immediately and call for help.
- Gut Alert: Monitor for diarrhea or stomach cramping, especially if there is blood or fever. This could be a serious gut infection (C. diff) and should be reported immediately, even if it happens weeks after stopping the drug.

Interactions

Drug-Drug: Should not be administered concomitantly with any calcium-containing solutions. May ↑ risk of bleeding with warfarin

Client Education

Completing the Treatment

- Finish All Medicine: Even if you start feeling better, you MUST finish the entire course of the antibiotic. Stopping early can make the infection come back, and the bacteria may become harder to kill next time.
- No Improvement: If your symptoms do not start to get better within the first few days, call your doctor.

Injection Site

- Report Pain/Swelling: Since this drug is given by injection (shot or IV), notify your nurse or doctor if you have severe pain, swelling, or irritation where the shot was given.

Important New Symptoms to Watch For

- Severe Allergy: Get medical help immediately if you have signs of a severe allergy, like a rash, hives, or swelling of the face/throat/tongue, or trouble breathing/wheezing.
- Gallbladder/Kidney: In rare cases, this drug can cause problems like gallstones or kidney problems. Report any sudden, severe pain in your stomach or side.
- Other Side Effects: Tell your doctor if you have severe or prolonged headache, dizziness, nausea, or vomiting

Other Details

- Lab Tests: You may need to have follow-up blood tests (lab work) to check on the effects of this medication. Keep all your appointments.
- Vaccines: Tell the doctor you are taking ceftriaxone before getting any vaccines (like the typhoid vaccine), as the antibiotic may stop them from working.

Evaluation of Medication Effectiveness

- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.
- Decreased incidence of infection when used for prophylaxis.

Module Report

Tutorial: Real Life RN Medical Surgical 4.0

Module: COPD

Individual Name: **Carolina Rodriguez-Herrera**

Institution: **Margaret H Rollins SON at Beebe Medical Center**

Program Type: **Diploma**

Standard Use Time and Score

	Date/Time (ET)	Time Use	Score
COPD	10/23/2025 11:26:09 AM	1 hr	Strong

Reasoning Scenario Details
COPD - Use on 10/23/2025 10:25:41 AM ET

Reasoning Scenario Performance Related to Outcomes:

*See Score Explanation and Interpretation below for additional details.

Body Function	Strong	Satisfactory	Needs Improvement
Cognition and Sensation	100%		
Immunity	100%		
Ingestion, Digestion, Absorption & Elimination	100%		
Integument	100%		
Oxygenation	100%		

NCLEX RN	Strong	Satisfactory	Needs Improvement
RN Management of Care	100%		
RN Psychosocial Integrity	100%		
RN Pharmacological and Parenteral Therapies	100%		
RN Reduction of Risk Potential	100%		
RN Physiological Adaptation	100%		

QSEN	Strong	Satisfactory	Needs Improvement
Safety	100%		
Patient-Centered Care	100%		
Evidence Based Practice	100%		
Teamwork and Collaboration	100%		

Decision Log:

Optimal Decision	
Scenario	Nurse Allyson is preparing her assignment/worksheet, in anticipation of caring for Mr. Gomez. He is coming from the emergency department to the medical-surgical unit.
Question	Nurse Allyson is planning care for Mr. Gomez. He is coming from the emergency department. Which of the following data should the nurse include in the plan of care? (Select all that apply.) Review the data in the EMR and the information the nurse has captured below for the assignment/worksheet.T - 99.2; P - 100; R - 36; O2 Sat 91% on 5L of O2; BP - 150/94; I - NPO; O - 250mL clear yellow urine Dx - Pneumonia, exacerbation of COPDLabs/Diagnostics - ABGs, CBC, chest x-ray, chem/metabolic profile, UA and C&S of sputum pendingAllergies - AmpicillinSaline Lock - Left wrist, flushes finePain - DeniesSystems - 1. Lung sounds diminished in the bases and upper lobes sounds coarse with inspiratory crackles and occasional rhonchi. Productive cough, greenish-yellow tenacious sputum. 2. Alert, orientedMedications - Antibiotic has not been started. Has had 2 nebulizer treatments with albuterol. (
Selected Ordering	Code statusArterial blood gas (ABG) valuesLast dose of bronchodilator medication
Rationale	Respiratory insufficiency and failure are life-threatening complications of COPD. Use the priority framework of ABCs; anticipating the client can readily go into respiratory arrest and determining a course of action are priorities. Arterial blood gases establish a client's baseline oxygenation and gas exchange, and are a basis for evaluating a client's respiratory status. Nutrition concerns are relevant to the rehabilitation process of a client who has COPD, not the client in an acute stage of respiratory failure. Activity tolerance would not be a priority concern at this time. Exacerbation of COPD warrants optimization of bronchodilator medications as first-line therapy and identifying the best combination of medications to be given on a regular schedule.

Optimal Decision	
Scenario	Nurse Allyson is assessing Mr. Gomez's respiratory and oxygenation status after his recent admission to the medical-surgical unit.
Question	Nurse Allyson assessed Mr. Gomez's respiratory status. Which of the following actions should Nurse Allyson take?
Selected Option	Decrease the rate of oxygen flow.

Rationale	Decreasing the rate of oxygen flow is the appropriate action because the lowest possible rate maintains oxygen status without depressing the respiratory drive. The client who has COPD with hypoxemia requires lower levels of oxygen delivery, usually in the range of 1 to 2 L/min. Some clients are chronic CO2 retainers (hypercapnia) and can be more oxygen sensitive, so too much oxygen increases CO2 retention and can result in lowered respiratory rates.

Optimal Decision	
Scenario	Nurse Allyson is preparing to administer an intermittent intravenous (IV) bolus antibiotic medication to Mr. Gomez.
Question	Review the five videos below related to the administration of the IV piggyback ceftriaxone (Rocephin) to Mr. Gomez and reorder the steps into the correct sequence by dragging them into the desired order.
Selected Ordering	Video B: Complete the six rights using the MAR, noting client allergies. Video D: Gather supplies and equipment needed to administer the medication. Video A: Complete client identification using two forms of data, noting client's allergy band. Video C: Inform the client about the procedure and what to expect. Video E: Administer the medication.
Rationale	The correct order for administering the intermittent IV bolus medication is: complete the six rights using the MAR, noting client allergies; gather supplies and equipment needed to administer the medication; complete client identification using two forms of data, noting client's allergy band; inform the client about the procedure and what to expect; administer the medication.

Optimal Decision	
Scenario	Nurse Allyson completes a calculation in order to correctly set the IV controller pump to infuse an intermittent intravenous (IV) bolus medication.
Question	The nurse is preparing to administer ceftriaxone (Rocephin) 1 g IV. Available is ceftriaxone 1 g in 100 mL sterile water. When administering the medication over 30 min, the nurse should set the IV pump to deliver how many mL/hr?
Selected Option	200 mL/hr
Rationale	STEP 1: What is the unit of measurement to calculate? mL/hr STEP 2: What is the volume needed? 100 mL STEP 3: What is the total infusion time? 30 min STEP 4: Should the nurse convert the units of measurement? Yes (min does not equal hr) 60 min/30 min = 1 hr/X hr X = 0.5 hr STEP 5: Set up an equation and solve for X. Volume (mL)/Time (hr) = X mL/hr 100 mL/0.5 hr = X mL/hr X = 200 STEP 6: Round if necessary. STEP 7: Reassess to determine if the amount to administer makes sense. If the amount prescribed is 100 mL to infuse over 30 min, it makes sense to administer 200 mL/hr. The nurse should set the IV pump to deliver ceftriaxone at 200 mL/hr every 12 hr.

Optimal Decision	
Scenario	Nurse Allyson responds to a request from Mr. Gomez's daughter related to a change in his condition.
Question	Mr. Gomez's daughter expresses concern to the nurse about her father's skin irritation and itching. Which of the following is a correct response by Nurse Allyson?
Selected Option	"I'll be right there."
Rationale	The nurse knows the client has an allergy to ampicillin (Unasyn) and is now receiving ceftriaxone (Rocephin). Itching and pruritus indicate the presence of an allergic response. The client's report of pruritus should be evaluated promptly.

Optimal Decision	
Scenario	Nurse Allyson reviews the appropriate action to take when a Mr. Gomez demonstrates an allergic response to a medication.
Question	When caring for Mr. Gomez during his allergic reaction, Nurse Allyson assesses his airway. What is the next appropriate nursing intervention?
Selected Option	Assess Mr. Gomez's breathing pattern.
Rationale	The nurse's next action is to monitor the client's breathing pattern for signs of increasing edema and respiratory distress.

Optimal Decision	
Scenario	Nurse Jessica uses therapeutic communication when discussing psychosocial issues with Mr. Gomez and his daughter.
Question	Which of the following nursing intervention is appropriate to meet the needs of Mr. Gomez and his daughter at this time?
Selected Option	Encourage Mr. Gomez and his daughter to further express their emotions.
Rationale	This is the correct response. Using active listening and an expression of the client's feelings helps to validate the feelings and their content. This approach conveys an attitude of caring and fosters ongoing communication.

Optimal Decision	
Scenario	Nurse Jessica recognizes the anatomical and physical changes that are occurring when Mr. Gomez develops a pleural effusion.
Question	Nurse Jessica is caring for Mr. Gomez and is aware that he has a pleural effusion. Which of the following images depicts a pleural effusion?
Selected Option	
Rationale	In a pleural effusion, fluid occupies the space that normally is filled with air in the pleural cavity.

Optimal Decision

Scenario	Nurse Jessica assesses Mr. Gomez, who has a chest tube and chest drainage system in place.
Question	Nurse Jessica received report from the AP about Mr. Gomez's difficulty breathing and increased anxiety. Which of the following activities should be included in the nurse's plan of care?
Selected Option	Assess all tube connections between the chest and the drainage system.
Rationale	Securing the chest tube to the drainage system reduces the risk of air leaks in an airtight system.

Optimal Decision	
Scenario	Nurse Allyson understands the basis for Mr. Gomez's protein nutrition status.
Question	Nurse Allyson recognizes that Mr. Gomez has an acute protein deficiency. Which of the following laboratory test results is useful in determining a client's protein nutrition status?
Selected Option	Prealbumin
Rationale	Prealbumin is a sensitive indicator of protein nutrition status, more so than albumin.

Optimal Decision	
Scenario	Review risk factors that make Mr. Gomez prone to skin breakdown.
Question	Review the list of risk factors to skin breakdown. Which of the following are risk factors that Mr. Gomez exhibit? (Select all that apply.)
Selected Ordering	Alcohol intake History of corticosteroid use Limited mobility Chronic illness (COPD)
Rationale	A risk factor that makes the client prone to skin breakdown includes having a chronic illness such as COPD, which alters oxygenation.

Optimal Decision	
Scenario	Nurse Allyson is planning discharge teaching for a client with pneumonia and an acute exacerbation of COPD.
Question	Nurse Allyson is planning discharge teaching for Mr. Gomez. Which of the following should be included in the discharge instructions?
Selected Option	Begin a pulmonary rehabilitation program.
Rationale	Pulmonary rehabilitation can improve the endurance and pulmonary function of a client who has COPD. It increases the client's activity, which reduces dyspnea.

Individual Report – Score Explanation and Interpretation

Reasoning Scenario Information:

Reasoning Scenario Information provides the date, time and duration of use, along with the score earned for each attempt. A Reasoning Scenario Performance score of Strong, Satisfactory, or Needs Improvement is provided for each attempt. This information is also provided for the Optimal Decision Mode if it has been enabled.

Reasoning Scenario Performance Scores:

Strong	Exhibits optimal reasoning that results in positive outcomes in the care of clients and resolution of problems.
Satisfactory	Exhibits reasoning that results in mildly helpful or neutral outcomes in the care of clients and resolution of problems.
Needs Improvement	Exhibits reasoning that results in harmful or detrimental outcomes in the care of clients and resolution of problems.

Reasoning Scenario Performance Related to Outcomes:

A clinical reasoning performance score related to each outcome is provided. Outcomes associated with student responses are listed in the report. The number across from each outcome indicates the percentage of responses associated with the level of performance of that outcome.

NCLEX® Client Need Categories:

Management of Care	Providing integrated, cost-effective care to clients by coordinating, supervising, and/or collaborating with members of the multi-disciplinary health care team.
Safety and Infection Control	Incorporating preventative safety measures in the provision of client care that provides for the health and well-being of clients, significant others, and members of the health care team.
Health Promotion and Maintenance	Providing and directing nursing care that encourages prevention and early detection of illness, as well as the promotion of health.
Psychosocial Integrity	Promoting mental, emotional, and social well-being of clients and significant others through the provision of nursing care.
Basic Care and Comfort	Promoting comfort while helping clients perform activities of daily living.
Pharmacological and Parenteral Therapies	Providing and directing administration of medication, including parenteral therapy.
Reduction of Risk Potential	Providing nursing care that decreases the risk of clients developing health-related complications.

Physiological Adaptation	Providing and directing nursing care for clients experiencing physical illness.

Quality and Safety Education for Nurses (QSEN)

Safety	The minimization of risk factors that could cause injury or harm while promoting quality care and maintaining a secure environment for clients, self, and others.
Patient-Centered Care	The provision of caring and compassionate, culturally sensitive care that is based on a client's physiological, psychological, sociological, spiritual, and cultural needs, preferences, and values
Evidence Based Practice	The use of current knowledge from research and other credible sources, upon which clinical judgment and client care are based.
Informatics	The use of information technology as a communication and information gathering tool that supports clinical decision making and scientifically based nursing practice.
Quality Improvement	Care related and organizational processes that involve the development and implementation of a plan to improve health care services and better meet the needs of clients.
Teamwork and Collaboration	The delivery of client care in partnership with multidisciplinary members of the health care team, to achieve continuity of care and positive client outcomes.

Body Function

Cardiac Output and Tissue Perfusion	The anatomical structures (heart, blood vessels, and blood) and body functions that support adequate cardiac output and perfusion of body tissues.
Cognition and Sensation	The anatomical structures (brain, central and peripheral nervous systems, eyes and ears) and body functions that support perception, interpretation, and response to internal and external stimuli.
Excretion	The anatomical structures (kidney, ureters, and bladder) and body functions that support filtration and excretion of liquid wastes, regulate fluid and electrolyte and acid-base balance.
Immunity	The anatomic structures (spleen, thymus, bone marrow, and lymphatic system) and body functions related to inflammation, immunity, and cell growth.
Ingestion, Digestion, Absorption and Elimination	The anatomical structures (mouth, esophagus, stomach, gall bladder, liver, small and large bowel, and rectum) and body functions that support ingestion, digestion, and absorption of food and elimination of solid wastes from the body.
Integument	The anatomical structures (skin, hair, and nails) and body functions related to protecting the inner organs from the external environment and injury.
Mobility	The anatomical structures (bones, joints, and muscles) and body functions that support the body and provide its movement.

Oxygenation	The anatomical structures (nose, pharynx, larynx, trachea, and lungs) and body functions that support adequate oxygenation of tissues and removal of carbon dioxide.
Regulation and Metabolism	The anatomical structures (pituitary, thyroid, parathyroid, pancreas, and adrenal glands) and body functions that regulate the body's internal environment.
Reproduction	The anatomical structures (breasts, ovaries, fallopian tubes, uterus, vagina, vulva, testicles, prostate, scrotum, and penis) and body functions that support reproductive functions.

Decision Log

Information related to each question answered in a scenario attempt is listed in the report. A brief description of the scenario, question, selected option and rationale for that option are provided for each question answered. The words "Optimal Decision" appear next to the question when the most optimal option was selected.

The rationale for each selected option may be used to guide remediation. A variety of learning resources may be used in the review process, including related ATI Review Modules.

Student Name: Carolina Rodriguez
Clinical Instructor:

ATI Real Life COPD Virtual Clinical Reflection Questions

1) Identify two members of the healthcare team collaborating in the care of this patient:
    a. Respiratory therapist (Dan in the simulation)
    b. Healthcare provider (Dr. Peetze in simulation)

2) Did your patient have any abnormal blood work (lab)? If so, *select a priority finding* and discuss why that value is concerning.
    a. The patient had an abnormal WBC of 13,000, with the normal range being between 5,000 and 10,000. The value is concerning because it's indicating a sign of inflammation or infection.

3) Did your patient have any abnormal clinical diagnostic tests? If so, what were they and what was the abnormal finding? What can that indicate?
    a. The patient had a chest x-ray, in which they found hyperinflation of bilateral lung fields and a flattened diaphragm. The radiology report also states changes characteristic of atelectasis in bilateral bases and an abnormal area of density present in the left lung base suspicious of pneumonia. This is concerning This is concerning because the lungs are abnormally inflated and are holding too much air, which can be a classic sign of trapped air caused by emphysema. The hyperinflation of the lungs then causes the diaphragm to be pushed downward. Pneumonia in a patient with COPD reduces the already compromised lung function and can lead to hypoxemia.

4) What were some of the teaching topics covered in the scenario? Why were they important to the care of this patient?
    a. The nurse educated the patient on why the patient was receiving ceftriaxone (for pneumonia), how often, and told patient to use call light if they experienced any discomfort or itching. This is important because it lets the patient what's going on and what they're receiving and can also reduce their anxiety or fear.
    b. Educated patient on they might have been experiencing some itching due to the medication administered via IV (patient has an allergy to ampicillin and patients who are allergic to that might be allergic to similar medications). This is important to prevent any further side effects that could worsen the patient's health.
    c. The nurse provided printed handouts on metered dose inhaler and provided a video as well. This is important because it provides thorough instructions to the patient as well as his daughter on how to properly use the inhaler to and take advantage of its effects.

5) Identify three ways that the nursing team demonstrated the promotion of patient safety?
    a. Asked for name and DOB every time to ensure right patient
    b. The nurse checked right medication, right dose, right time, right route, right patient, and right documentation before administering ceftriaxone
    c. Nurse stopped the medication right away when due to it causing itching to patient because of his allergy to ampicillin
6) 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:
    I feel the nurse and the medical team utilized therapeutic communication techniques when interacting with individuals, families, and health team members. Throughout the simulation, everyone expressed active listening, silence, focusing, clarification, acceptance, and opened ended/closed questions. For example, the nursing exhibited proper body language/eye contact with silence and active listening when the patient's daughter was exhibiting worry about her father.
    b. If **no**, describe:
    _____
    _____
    _____

Reflection

1) Go back to your Preconference Form:
    a. Indicate **(circle, star, highlight)** the components of your preconference form that you saw applied to the care of this virtual patient.
2) Review your Nursing Problem Worksheet: Did you select a correct priority nursing problem?
    a. If **yes,** write it here: Impaired gas exchange
    b. If **no,** write what you now understand the priority nursing problem to be:

    _____
3) Review your Nursing Problem Worksheet: Did you see many of your anticipated nursing assessments and interventions used?
    a. Indicate **(circle, star, highlight)** the ones you saw utilized during the scenario.
    b. Were there interventions you included that *were not* used in the scenario that could help this patient?
        i. If **yes**, describe:

        Yes, for my priority problem, impaired gas exchange, I saw many of my assessments and interventions used. For example, I saw the nurse assess his pulse ox, RR, use of IS, lung sounds, and WOB. The interventions that I saw used were maintaining the patient's oxygen, encouraging use of IS, administering ceftriaxone, and having the HOB elevated.

        ii. If **no**, describe:

        For my second problem, which was acute pain, I didn't really see my assessments or interventions get used. The patient wasn't really in pain, only after experiencing a reaction to the ceftriaxone.
4) Often patient care will take a different direction than we anticipated at the beginning of our shift. Did that happen here? Yes.
    a. How did that impact the nursing care delivered?

    The patient didn't just have COPD, they had exacerbation of COPD, probably due to the pneumonia. They also had a pleural effusion, which is fluid buildup in the lungs, maybe due to his lack of movement. This impacted the nursing care delivered because he required ceftriaxone due to his pneumonia, which then caused him to experience an allergic reaction. The patient also requested increased oxygen supply various times but was told he would be receiving a nebulizing treatment. In my opinion, in the simulation, the primary goal of care shifted from comfort and education to maintaining a patent airway and adequate gas exchange.
    b. What new, additional priority nursing problem (diagnosis) did you identify? (Refer to your NANDA list)
        i. Write it here: Impaired skin integrity due to lack of movement and COPD

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 is that anything can change. Sometimes what we expect isn’t what’s happening at all. I learned how to prioritize assessments and interventions and how important it is to educate the patient on anything and everything. For example, if the nurse hadn’t educated the patient on the importance of the use of the call bell if they experienced any side effects or reactions due to the medication, the patient may not have shared that he was experiencing some itching because he might have thought that it was normal.