

## Preconference Form

Student Name: Chloe Klaus

Medical Diagnosis/Disease: COPD- Chronic Obstructive Pulmonary Disease

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

#### Anatomy and Physiology

##### Normal Structures

Respiratory System: split into two tracts, upper and lower.

U: nose, paranasal sinuses, pharynx, larynx.

L: trachea, bronchi, bronchioles, alveoli, lungs

Inhalation->Gas Exchange->Exhalation

These components work together to facilitate the intake of oxygen and expulsion of carbon dioxide. The primary site of gas exchange occurs in at the alveoli's where oxygen moves into the bloodstream and CO2 moves into the lungs to be exhaled

Lung Parenchyma: the part of the lungs that is responsible for gas exchange.

Made up of alveoli, interstitial tissues, fibers

Pulmonary Circulation: network of arteries, veins, and lymphatics (maintaining a dry alveolar membrane and preventing accumulation of tissue fluid around the pulmonary circulation-found close to the terminal bronchioles and drain the mediastinal lymphatics before emptying into the right lymphatic duct) that function to exchange blood and other tissue fluids between the heart, the lungs, and back.

The pleura is a two-layered membrane that surrounds the lungs and separates them from the chest wall: visceral (inner)- covers the lungs, blood vessels, nerves, and bronchi. The visceral pleura lacks sensory nerves and is not sensitive to pain.

Parietal (outer)- attaches to the chest wall, diaphragm, and mediastinum. The parietal pleura is sensitive to pain.

#### Pathophysiology of Disease

Characterized by chronic inflammation of airways, lung parenchyma (respiratory bronchioles and alveoli), and pulmonary blood vessels. A defining feature is the inability to expire air.

Main Cause: Repeated exposure to noxious gases/particles causes chronic inflammation that destroys the normal defense mechanisms and repair process of the lungs.

- Inflammatory cells of COPD: neutrophils, macrophages, and lymphocytes.
- The inhaled particles **inactivate our antiproteases (which prevent the natural break down of the lungs)**, stimulate mucus secretion, and increase fluid in the lungs.
- The inhaled particles **increase proteases (which break down connective tissue of the lungs)**
- This antiprotease and protease imbalance **cause loss of recoil and alveolar destruction**

As the peripheral airways become obstructed, **air is progressively trapped during expiration**. As more air gets trapped **the chest hyper-expands** and becomes barrel shaped because the respiratory muscles cannot function effectively. **Inhalation is done with the lungs already at a "overinflated" state due to residual air and loss of elastic recoil.**

As air trapping increased, and walls of alveoli are destroyed bullae (large air spaces in the parenchyma) and blebs (air spaces next to the pleura) can form.

As the disease advances the structure of

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

#### Anticipated Diagnostics

##### Labs

- ABGs
- Serum Antitrypsin Levels (indicate Alpha-1 antitrypsin deficiency)
- **Spirometry (confirms diagnosis- confirms presence of airflow obstruction and severity)**
- CBC
- BMP

##### Additional Diagnostics

- COPD Assessment Test
- Clinical COPD Questionnaire
- A chest X-ray
- A CT scan
- A peak flow test
- An electrocardiogram (ECG)
- An echocardiogram
- A lung volume test
- A diffusing capacity test
- An exercise test like a 6-minute walk test

the **pulmonary arteries changes**, resulting in the thickening of the vascular smooth muscle. **The loss of alveolar walls and capillaries increase pressure in the pulmonary circulation.** Pulmonary hypertension (when blood pressure in the lungs is abnormally high) can cause the right ventricle (ventricle that brings blood to the lungs) to break down.

**Classifications:** based on FEV levels (forced expiratory volume)  
 Mild- > 80%  
 Moderate- 50-80%  
 Severe- 30-50%  
 Very Severe- <30%

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

Contributing Risk Factors

- Cigarette Smoking
- Noxious Particles and gases
- Reoccurring Respiratory Infection
- Asthma
- Air Pollution
- Aging (decreased elasticity of the lungs reduce ventilatory reserve)
- Genetics
- Alpha-1 Antitrypsin Deficiency (protects lung tissue from attack by proteases during inflammation related to smoking or infection)
- Chronic Inflammation

Signs and Symptoms

- Chronic Cough
- Sputum Production
- Dyspnea
- Hx of exposure to risk factors
- Wheezing
- Tightness in the chest
- Hypoxia

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

Possible Therapeutic Procedures

Non-surgical

- Oxygen Therapy
- Bronchodilator Drug Therapy
- Respiratory Therapy
- Nutritional Therapy

Surgical

- Lung Volume Reduction Surgery (remove diseased lung tissue)
- Bronchoscopic Lung volume Reduction (places 1-way valves in the diseased part of the lung, allowing air to leave the lung during exhalation)

Prevention of Complications

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

- Chronic Bronchitis
- Emphysema
- Hypoxia
- Dyspnea
- Chronic Cough
- Pulmonary Hypertension
- Cor Pulmonale (right side of the heart failure)
- Acute exacerbations
- ARF
- Weight loss

### Parenteral Therapies

#### Anticipated Medication Management

- Anticholinergics
- Fluticasone, Budesonide
- Mucolytics
- Inhaled Anticholinergics

### Care Needs

#### What stressors might a patient with this diagnosis be experiencing?

- Stress/anxiety
- Mental fatigue
- Financial
- Family

#### Non-Pharmacologic Care Measures

- Respiratory Therapy
- Nutritional Therapy

### Client/Family Education

#### List 3 potential teaching topics/areas

- Stop smoking to slow down progression of the disease
- Avoid others who are sick
- Practice good hand-hygiene
  - Take drugs as prescribed
  - Exercise regularly
  - Maintain a healthy weight

### 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)  
RT, OT, PT, PCP, CNA, Pulmonologist, Radiologists, Pharmacists, Nutritionists, Social Workers

Name: Chloe Klaus

<b>Anticipated Patient Problem</b>  <b>and</b>  <b>Goals</b>	<b>Relevant Assessments</b>  <b>(Prewrite) What assessments pertain to your patient's problem? Include frequencies</b>	<b>Multidisciplinary Team Intervention</b>  <b>(Prewrite) What will you do if your assessment is abnormal?</b>
<b>Problem:</b> Impaired Gas Exchange  <b>Reasoning:</b> Hypoxemia, Dyspnea, Fatigue, Labored and irregular breathes  <b>Goal:</b> Respiratory Rate will remain within 12-20 breaths per minute during my time of care  <b>Goal:</b> Oxygen sats will remain > 88% on Room Air	Assess respiratory rates q 4 hrs	Encourage IS 10x q hr, with goal of > 600 mL
	Auscultate breathe sounds in all fields q 4 hrs	Implement hydration goal of 120 mL q hourly
	Monitor oximetry readings q 2 hrs	Apply 3 L NC, SpO2 > 88%-92% at all times
	Assess work of breathing q 4 hrs	Encourage deep breathing techniques and pursed-lip breathing 5x q hourly
	Assess cough and WOB [accessory muscle use] q 4 hrs	Educate on coughing techniques [splinting]

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<b>Problem:</b> Impaired nutrition less than body requirements  <b>Reasoning:</b> Decreased intake due to fatigue, low BMI, SOB	Assess food and fluid intake q 4hrs	Encourage high calorie foods, protein and drinks such as juice q 4 hrs
	Assess weight daily	Provide supplement protein drinks [Ensures] TID
	Assess oral mucosa q 8hrs	Provide oral care BID

when at rest and during activity, skin slow to recoil

**Goal:** Patient will eat >75% of all meals during my time of care

**Goal:** Patient will drink one full ensure during my time of care

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ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Chloe Klaus

MEDICATION Ceftriaxone

REVIEW MODULE CHAPTER \_\_\_\_\_

CATEGORY CLASS Antibiotic

**PURPOSE OF MEDICATION**

**Expected Pharmacological Action**

Interferes with bacterial cell wall synthesis by inhibiting cross-linking of peptidoglycan strands. Peptidoglycan makes the cell membrane rigid and protective. Without it, bacterial cells rupture and die.

**Therapeutic Use**

To treat infections caused by bacteria

**Complications**

Chills, fever, edema, hearing loss, C. diff, dyspnea, pain, redness, sickness

**Medication Administration**

1-2g daily for 4-14 days  
Maximum 4g daily

**Contraindications/Precautions**

Hyperbilirubinemia or premature neonates, other beta lactam antibacterials or cephalosporins, penicillin, or their components

**Nursing Interventions**

Do not give calcium containing products within 48 hrs of dose, use cautiously with pt. who have hypersensitivity to penicillin's, monitor BUN and creatinine, assess BM's, assess for N/V

**Interactions**

Drugs: Probenecid may increase concentration, Calcium salts may increase adverse effects, Aminoglycosides, loop diuretics, increased risk of nephrotoxicity      Lab: may increase BUN, alkaline phosphate, bilirubin, creatinine

**Client Education**

Educate to report bleeding or watery stools

**Evaluation of Medication Effectiveness**

No sign of infection

### Compatibility

Diltiazem (Cardizem), heparin, lidocaine, metronidazole (flagyl), morphine, propofol (diprivan)

### Amount

Powder for reconstitution: 250 mg, 500 mg, 1g, 2g  
IV Solution: 1g/50mL, 2g/50mL

### Rate of Administration

For IVPB infuse over 30 minutes

### Diluent

Add 2.4 mL sterile water for injection to each 250 mg to provide concentration of 100 mg/mL. May further dilute with 50-100 mL 0.9% NaCl, D5W

### Site, supplies, storage, stability

IVPB is stable for 2 days at room temperature, 10 days if refrigerated, discard if participate forms

**MEDICATION** Acetaminophen (Paracetamol)

**REVIEW MODULE CHAPTER** \_\_\_\_\_

**CATEGORY CLASS** Antipyretic, Nonopioid Analgesic

**PURPOSE OF MEDICATION**

**Expected Pharmacological Action**

Inhibits enzyme cyclooxygenase, blocking prostaglandin production and interfering with pain impulse generation in the PNS. Also acts on temperature-regulating center in the hypothalamus by inhibiting synthesis of prostaglandin E2

**Therapeutic Use**

To relieve mild to moderate pain; to relieve fever

**Complications**

red, peeling or blistering skin, rash, hives, itching, swelling of the face, throat, tongue, lips, eyes, hands, feet, ankles, or lower legs, hoarseness, difficulty breathing or swallowing

**Medication Administration**

Do not crush, split, or chew ER pill  
Do not exceed 3,250 mg per day

**Contraindications/Precautions**

Severe active liver disease or impairment

**Nursing Interventions**

Ensure no sign of liver failure is shown, ensure pt. does not drink alcohol, monitor renal function, monitor skin

**Interactions**

Incompatible with Chlorpromazine and diazepam  
Drugs: anticholinergics, barbiturates, dasatinib, lamotrigine, warfarin, can cause hepatotoxicity

Alcohol use can cause hepatotoxicity

**Client Education**

Teach to swallow pill whole, caution to take how it is prescribed

**Evaluation of Medication Effectiveness**

Relief of pain or fever