

## Preconference Form

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

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

#### Anatomy and Physiology

##### Normal Structures

Respiratory system composed of nose, pharynx, larynx, trachea, bronchi, bronchioles, alveoli, lungs, and diaphragm. Major function of resp system is gas exchange, bringing oxygen into the body and expelling carbon dioxide. Air travels through the airways until it reaches alveoli (tiny air sacs surrounded by capillaries), this is where oxygen diffuses into the blood and carbon dioxide diffuses out into alveoli. Type II alveolar cells secrete surfactant, which reduces the surface tension of the air-liquid in alveoli, therefore preventing lung collapse, or atelectasis. The respiratory system also works to produce mucus. This works to trap and expel irritants, like dust, mold, germs, etc. Tiny hairs called cilia move the mucus and trapped debris out of the airways. Lastly, the lungs are protected by the mediastinum and each lung has their own pleural membrane. The space between the visceral pleura (covering each lung) and the parietal pleura (lining chest cavity) is to reduce friction during breathing, lubricate lungs, and maintain a negative pressure so the lungs can expand and contract smoothly.

R/t circulation: lungs get blood through pulmonary artery from right ventricle, gas exchange occurs, oxygenated blood gets back to heart through pulmonary vein into left atrium.

#### Pathophysiology of Disease

COPD is a progressive lung disorder characterized by chronic inflammation and irreversible airflow limitation. It's mostly caused by long-term exposure to chemical irritants such as cigarette smoke, occupational dust, or pollution. Over time these irritants trigger an inflammatory response in the airways and alveoli, leading to tissue destruction and structural changes in the lungs. The airway walls thicken, mucus production increases, and the smooth muscles around the bronchi become constricted. These factors narrow the airways and make it harder for air to flow out of the lungs. The lungs lose some of their natural elasticity, leading to air trapping and hyperinflation, which makes breathing less efficient. Over time, gas exchange becomes impaired which results in hypoxemia (low oxygen levels) and high carbon dioxide levels (hypercapnia) in the blood. The body will compensate by increasing RR and producing more RBCs to carry oxygen. Chronic low oxygen levels can cause constriction of pulmonary vessels, leading to hypertension.

COPD causes progressive SOB, fatigue, activity intolerance.

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

#### Anticipated Diagnostics

##### Labs

**ABG's** - evaluates oxygenation and ventilation status. Can measure oxygen and carbon dioxide levels in the blood, along with pH for respiratory acidosis.

**CBC** - detects infection and oxygen-carrying capacity. Expected findings would be high WBC count, hemoglobin, and hematocrit from chronic hypoxia (body produces more RBCs to carry oxygen).

##### Additional Diagnostics

**Pulmonary Function Tests (PFTs/spirometry)** - primary diagnostic test for COPD. Measures airflow limitation and lung capacity.

**CXR** - evaluates lung structure (can find hyperinflated lungs, flattened diaphragm). CT scan of the chest - provides more detailed view to find tumors or fibrosis.

**Pulse Oximetry** - monitors oxygen saturation (SpO2)  
Sputum culture and sensitivity - identifies infectious organisms.

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

#### Contributing Risk Factors

- **Smoking**
- Long-term exposure to environmental pollutants
- Occupational exposures
- Secondhand smoke
- Genetic predisposition
- **Advanced age**
- Recurrent respiratory infections
- Socioeconomic factors

#### Signs and Symptoms

- Chronic cough (productive w/ **sputum**)
- **Dyspnea**
- Wheezing/chest tightness
- **Fatigue**
- Cyanosis
- Use of accessory muscles for breathing
- Clubbing
- **Weight loss**
- Decreased breath

#### Possible Therapeutic Procedures

##### Non-surgical

Oxygen therapy, nebulizer treatment, breathing retaining, **nasal canula.**

##### Surgical

Lung volume reduction surgery (remove damaged portions), lung transplant for end-stage.

#### Prevention of Complications

(What are some potential complications associated with this disease process)  
Respiratory failure, hypertension, recurrent respiratory infections, **pleural effusion**, malnutrition, **weight loss**, right-sided HF from strain, depression and anxiety.

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

#### Anticipated Medication Management

- Bronchodilators (rescue inhalers) for rapid relief of dyspnea or wheezing. Can also be used to reduce exacerbations (long-term use)
- Inhaled corticosteroids to reduce inflammation and mucus production.
- Mucolytics or **oxygen therapy**

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

#### Non-Pharmacologic Care Measures

Smoking cessation, **pulmonary rehabilitation**, breathing techniques, airway clearance (deep breathing, pursing lips), use of an incentive spirometer, **nutrition support**, annual influenza and pneumococcal vaccines, avoid exposure to smoke, air pollution, and allergens.

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

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

Dyspnea and constant SOB, increasing anxiety and fatigue, **activity intolerance** and trouble performing ADL's, frequent hospitalizations, loss of independence and disrupted daily life, sleep disturbances from nighttime coughing, medication side effects causing mood changes, weight gain, dry mouth. **Financial stress, fear or disease progression or death.**

### Client/Family Education

#### List 3 potential teaching topics/areas

- Breathing and airway management: demonstrate effective coughing and deep breathing techniques, correct inhaler, IS, or nebulizer use.
- Assess the situation to educate importance on smoking cessation, avoiding secondhand smoke, or air pollutants, encourage proper nutrition, infection prevention (vaccines and hand hygiene).
- Educate on safe oxygen use, no flames/smoking near oxygen, educate medication purpose, side effects to look out for and report, reinforce adherence to inhalers.

### 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)

**Registered nurse**, PCP, pulmonologist, respiratory therapist, physical therapist, occupational therapist, dietician, social worker, psychologist, pharmacist.