

## COPD Nursing Problem Worksheet

Name: Reagan Hockenbrock

Anticipated Patient Problem and Goals	Relevant Assessments (Pework) What assessments pertain to your patient's problem? Include frequencies	Multidisciplinary Team Intervention (Pework) What will you do if your assessment is abnormal?
<p><b>Problem:</b> Impaired Airway Clearance</p> <p><b>Reasoning:</b> Course lung sounds wheezing, persistent cough, dyspnea</p> <p><b>Goal:</b> Pt will maintain clear open airway and normal depth and rate of respirations during my time of care. Pt will demonstrate effective coughing techniques during my time of care.</p>	<p>Auscultate the lungs q4h, after coughing, and as needed.</p> <p>Assess respiratory rate, depth, and use of accessory muscles q4h.</p> <p>Assess the quantity, consistency, color, and frequency of sputum after each productive cough.</p> <p>Using pulse oximeter, monitor oxygen saturation q4h.</p> <p>Assess the pts breathing for any dyspnea during ADE's of exercise during each period of activity.</p>	<p>Keep HOB elevated <math>\approx 30^\circ</math> to facilitate an open airway.</p> <p>Administer corticosteroids as ordered by physician.</p> <p>Encourage the pt to cough up own secretions by splinting their chest during each coughing fit.</p> <p>Use a humidifier to increase room humidity.</p> <p>Plan interventions to have breaks in between, allowing the pt. to rest between activities.</p>

Anticipated Patient Problem and Goals	Relevant Assessments (Pework) What assessments pertain to your patient's problem? Include frequencies	Multidisciplinary Team Intervention (Pework) What will you do if your assessment is abnormal?
<p><b>Problem:</b> Imbalanced Nutrition: Less than body requirements</p> <p><b>Reasoning:</b> Food intake less than recommended dietary allowance, decreased food interest, muscle weakness</p> <p><b>Goal:</b> Pt will verbalize importance of eating high protein and high calorie meals during the time of my care.</p>	<p>Observe the pts heart rate and blood pressure q4h.</p> <p>Assess the environment in which eating occurs before each meal.</p> <p>measure the pts height and weight first thing in the morning, before they have eaten.</p> <p>Assess the pts attitudes and beliefs towards eating foods at the beginning of my care.</p> <p>Assess the pts hair, skin, mucous membranes, and nails during the initial head to toe assessment.</p>	<p>Perform oral hygiene in the morning, before meals.</p> <p>Ensure a pleasant environment before each meal.</p> <p>Discourage the consumption of carbonated or caffeinated drinks.</p> <p>Provide companionship while the pt eats each meal.</p> <p>Encourage the family to bring favorite and comfort foods from home for the pt to eat.</p>

① Pt will eat  $>50\%$  of at least 2 of 3 meals during the time of my care.

Student Name: Reagan Hockenbrock  
 Medical Diagnosis/Disease: Chronic Obstructive Pulmonary Disease (COPD)

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

Anatomy and Physiology  
Normal Structures

Functions: transport O<sub>2</sub> from the air to blood, remove CO<sub>2</sub> from the blood; warms and humidifies the air we breathe in; traps microorganisms that we inhale by cilia or mucous, acting as our first line of defense

Pathophysiology of Disease

Progressive lung disease characterized by persistent airflow limitation. Is associated with an enhanced chronic inflammatory response in the airways and lungs. Around 16 million adults in the US have COPD. The disease is no Dx until it is moderately advanced. 3<sup>rd</sup> leading cause of death in the US. More than 140,000 deaths each year.

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

Anticipated Diagnostics

Labs  
 ABG's (Pao<sub>2</sub>, Paco<sub>2</sub>)  
 Sputum culture and sensitivity if infection is suspected.  
Additional Diagnostics  
 Chest x-ray to reveal flat diaphragm, ECG to reveal heart function.

\* Spirometry + FEV<sub>1</sub> / FVC

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

Contributing Risk Factors

Cigarette Smoking, gender (more common in men), recurring respiratory infections during childhood, asthma, air pollution, aging, occupational dusts and chemicals,

Signs and Symptoms

Chronic cough, sputum production, dyspnea, chest heaviness, inability to take a deep breath, air hunger, abdominal/ accessory muscle breathing, wheezing, chest tightness →

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

Possible Therapeutic Procedures

Non-surgical Physical exercise, breathing therapy, pulmonary rehab, O<sub>2</sub> therapy  
Surgical  
 Lung volume reduction surgery, bronchoscopic lung volume reduction, bullectomy

Prevention of Complications

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

Pulmonary hypertension, cor pulmonale, acute exacerbations, ARF

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

Anticipated Medication Management

Bronchodilators, SABA's, LABA's, anticholinergics, corticosteroids, roflumilast, mucolytic agents

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

Non-Pharmacologic Care Measures

O<sub>2</sub> therapy, breathing retraining exercises, coughing exercises, pulmonary rehabilitation, repositioning

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

What stressors might a patient with this diagnosis be experiencing?

worries about dependency, anxiety, interpersonal relationships, fear of dying or chronic condition

**Client/Family Education**

List 3 potential teaching topics/areas

- Smoking cessation
- Breathing and airway clearance exercises
- Due to increased risk of developing lung infection; education on hand hygiene and avoiding sick individuals.

**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 Therapy (RT), Pulmonologist, Cardiologist, pharmacy, case management, nutritionist

## Anatomy + Physiology

### Thoracic Cavity

- divided into L and R pleural cavities separated by the mediastinum
  - ↳ mediastinum includes the heart, aorta, lower trachea, large bronchi, esophagus, hilum
- lined by pleura (a layer membrane), containing serous lubricating film
- Diaphragm: muscle that aids in breathing

### Upper Airway

- Nasal cavity / oral cavity: openings that pull in air from the outside
- Sinuses: regulates temp. of air, humidifying it as we inhale
- Pharynx / Larynx: delivers air from the mouth and nose to trachea

### Lower Airway

- trachea: connects lungs to throat ←
- bronchiole tubes: tubes that branch off from trachea into the lungs splits at carina
- lungs: separated into lobes RL 3, LL 2
  - ↳ lobes surrounded by pleura (thin sacs that separate lobe from chest wall)
- Alveoli: tiny air sacs in the lungs where the gas exchange occurs, specifically the pores of Kohn
  - ↳ capillaries: the blood vessels within where the gas moves
  - ↳ produces surfactant, which keeps the alveoli inflated

carina separates upper respiratory from lower

## Other Important Organs

- Cilia: small hairs in upper respiratory tract that catch pathogens
- Epiglottis: tissue flap that covers trachea entrance when swallowing
- Larynx: "voicebox"

## Mechanisms

- Inspiration: Diaphragm descends and flattens creating a negative intrathoracic pressure that causes air to move into the lungs
- Expiration: passive process; when the diaphragm relaxes and the elastic recoil causes the lungs to expel air and pull the diaphragm to its resting position

## Pulmonary vs. Bronchial Circulation

**Pulmonary Circulation:** carries deoxygenated blood away from the heart to the lungs, and returns oxygenated blood back to the heart (process of gas exchange by diffusion)

**Bronchial Circulation:** is the vascular supply to the lungs; how the lungs achieve oxygenated blood

## Pathophysiology

- \* chronic inflammation of the airways, lung parenchyma (respiratory bronchioles and alveoli), and pulmonary blood vessels.

- \* defining feature = airflow limitation not fully reversible during forced exhalation

  - ↳ mainly caused by loss of elastic recoil + airflow obstruction, from mucus hypersecretion, mucosal edema, + bronchospasms

1. begins by the inhalation of noxious particles and gases, that with repeated exposure, causes chronic inflammation.

2. Chronic inflammation destroys healthy tissue and disrupts normal defense mechanisms and repair of the lungs.

  - the cells causing inflammation are neutrophils, macrophages, and lymphocytes

  - inflammatory cells can cause increased inflammatory mediators and proinflammatory cytokines

3. Continued imbalance of oxidants in tobacco or pollution increases the activity of proteases, that break down the connective tissue of the lungs, and decreases the activity of antiproteases, which protect against breakdown. This imbalance causes alveolar destruction and loss of lung's elastic recoil.

4. As peripheral airways become obstructed air begins to trap during expiration.

This volume of residual air in the lungs increases as COPD becomes more severe, leading to the hyper-expansion of the chest

oxidants commonly contribute by inactivating antiproteases, stimulating mucus secretion, and increasing fluid in the lungs

(taking on a barrel shape) resulting in increased functional residual capacity.

↳ overall resulting in pt to become dyspneic with limited exercise capacity

5. Hypoxemia is a late manifestation of COPD that is caused by gas exchange problems.

↳ air trapping leads to the formation of bullae (large air spaces in the parenchyma) and blebs (air spaces next to pleurae), both of which do not contain a capillary.

↳ normal gas exchange occurs in the capillaries of alveoli

## Classifications of COPD

\* determined by FEV<sub>1</sub>/FVC test score; a diagnostic test that measures a person's vital capacity that they are able to expire in the first second of forced expiration to the full forced vital capacity

Gold 1	mild	FEV <sub>1</sub> ≥ 80% predicted
Gold 2	moderate	FEV <sub>1</sub> 50-80% predicted
Gold 3	severe	FEV <sub>1</sub> 30-50% predicted
Gold 4	very severe	FEV <sub>1</sub> < 30% predicted

## Signs + Symptoms Cont.

- fatigue, anorexia, weight loss, diminished breath sounds, pursed-lip breathing, tripod positioning to breath, hypoxemia