

Preconference Form

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Medical Diagnosis/Disease: COPD Exacerbation

NCLEX IV (8): Physiological Integrity/Physiological Adaptation

Anatomy and Physiology

Normal Structures

The upper respiratory tract includes the nose, mouth, pharynx, epiglottis, larynx, and trachea.

Air enters through the nose, where turbinates warm, moisten, and filter it. The nasal cavity connects to the sinuses and pharynx (nasopharynx, oropharynx, laryngopharynx).

Air moves past the epiglottis, which prevents food from entering the lungs, then through the larynx (with vocal cords) into the trachea.

The trachea stays open with U-shaped cartilage and divides into the right and left bronchi at the carina near the 4th–5th thoracic vertebrae. After air passes the carina, it enters the lower respiratory tract, which includes the bronchi, bronchioles, alveolar ducts, and alveoli—all located in the lungs. The right lung has three lobes; the left lung has two. The mainstem bronchi, blood vessels, and nerves enter the lungs at the hilus. The right bronchus is shorter, wider, and straighter—making aspiration more likely in the right lung. The bronchi branch into lobar, segmental, and subsegmental bronchi, then into bronchioles, and finally alveolar ducts and alveoli. The trachea and bronchi conduct air to and from the alveoli, where gas exchange (O_2 and CO_2) occurs across the alveolar-capillary membrane.

Pleura- The pleura protects the lungs, reduces friction during breathing, maintains lung expansion through negative pressure, and helps the lungs move smoothly within the chest cavity.

Pathophysiology of Disease

COPD is a diseased state characterized by airflow limitation that is not fully reversible. Airflow limitation is progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases and characterized by chronic inflammation throughout the airways, parenchyma, and pulmonary vasculature. The chronic airflow limitations of COPD is caused by a mixture of small airway inflammation (bronchitis) and parenchymal destruction (emphysema), and the relative contributions of each vary person to person.

Alveolar sacs- get stretched to the point that they break. Cilia are paralyzed covered in tar and they can't get the mucus out. Lungs are hyperinflated with old sail air.

NCLEX IV (7): Reduction of Risk

Anticipated Diagnostics

Labs

- **Arterial Blood Gases (ABGs)** – measures oxygen, carbon dioxide, and pH levels in the blood.
- Serum α_1 -Antitrypsin Levels – checks for a genetic deficiency that can cause COPD.
- **CBC** – elevated WBC, increase in RBC/ hemoglobin

Additional Diagnostics

- **History and Physical Assessment** – identifies symptoms, risk factors, and physical findings.
- **Chest X-ray** – visualizes lungs for hyperinflation, infection, or other changes.
- Spirometry – confirms airflow limitation and diagnoses COPD.
- 6-Minute Walk Test – assesses exercise tolerance and oxygen needs.
- COPD Assessment Test (CAT) **or** Clinical COPD Questionnaire (CCQ) – evaluates symptom severity and impact on

quality of life.

NCLEX II (3): Health Promotion and Maintenance

- Cigarette smoking
- Infection
- Asthma
- Air pollution
- Occupational chemicals and dust
- Aging
- Genetics
- Alpha - 1 Antitrypsin deficiency
- Gender

Signs and Symptoms

- Chronic cough
- productive cough
- Significant airflow limitation
- Dyspnea
- Chest heaviness
- Chest breather
- Wheezing
- Chest tightness
- Tripod positioning

NCLEX IV (7): Reduction of Risk

Possible Therapeutic Procedures

Non-surgical

- Oxygen therapy
- Drug therapy
- Respiratory care
- Nutrition therapy

Surgical

- Lung volume reduction surgery (LVRS)
- Bronchoscopic lung volume reduction (BLVR)
- Bullectomy

Prevention of Complications

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

- Pulmonary hypertension
- Cor pulmonale
- Acute exacerbations
- ARF (acute respiratory failure)

NCLEX IV (6): Pharmacological and Parenteral Therapies

Anticipated Medication Management

- Bronchodilators
- β_2 -Adrenergic Agonists
- Anticholinergics
- Methylxanthines
- Mucolytic Agents
- A1- antitrypsin infusions
- Inhaled Corticosteroids
- Antibiotics

NCLEX IV (5): Basic Care and Comfort

Non-Pharmacologic Care Measures

- Oxygen therapy
- Respiratory care
- Nutrition therapy
- Incentive spirometer

NCLEX III (4): Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

- Constant shortness of breath
- Sleep disturbances
- Decreased activity
- Need for O2 therapy of mechanical device

Client/Family Education

List 3 potential teaching topics/areas

- Teach the patient about their medication they're prescribed.
- Teach the patient breathing techniques.
- Teach the patient the importance of not smoking.

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)

- Primary health care provider
- Pulmonologist
- Registered nurse (RN)
- Respiratory therapist
- Occupational therapist
- Nutritionist
- Case manager