

DISEASE / PATHOLOGY

- Chronic obstructive pulmonary disease: persistent, usually progressive airflow limitation.
- Includes chronic bronchitis pattern (mucus/inflammation) and emphysema pattern (alveolar destruction).
- Air trapping increases residual volume; V/Q mismatch causes hypoxemia and later hypercapnia.
- Exacerbations are acute symptom worsening, commonly from infection or environmental irritants.
- NCLEX focus: do not over-oxygenate blindly; titrate to ordered target and monitor CO₂ retention risk.

RISK FACTORS

- Tobacco smoke is the major risk; also biomass fuel, occupational dust/chemicals, outdoor pollution.
- Age >40 with chronic cough, sputum, dyspnea, or exposure history.
- Alpha-1 antitrypsin deficiency: consider with early onset, minimal smoking history, or family history.
- Frequent respiratory infections, low socioeconomic exposure risks, and poor vaccination status.
- Exacerbation risks: prior exacerbations, severe airflow limitation, comorbid heart disease.

SIGNS AND SYMPTOMS

- Classic: progressive dyspnea, chronic cough, sputum, wheeze, prolonged exhalation, barrel chest.
- Assessment: diminished breath sounds, pursed-lip breathing, accessory muscle use, tripod posture.
- Exacerbation: increased dyspnea, sputum volume/purulence, cough, wheezing, fatigue, fever possible.
- Late/urgent: confusion, somnolence, cyanosis, inability to clear secretions, severe hypoxemia.
- Right-sided HF/cor pulmonale: JVD, peripheral edema, weight gain.

DIAGNOSTIC TESTING

- Spirometry confirms COPD: post-bronchodilator FEV₁/FVC <0.70.
- ABG/VBG if severe distress, altered LOC, or concern for CO₂ retention/respiratory acidosis.
- CXR may show hyperinflation; also rules out pneumonia, pneumothorax, or heart failure.
- CBC may show polycythemia from chronic hypoxemia or leukocytosis with infection.
- Alpha-1 antitrypsin testing when early onset or limited smoking exposure.

TREATMENT

- Assess first: respiratory effort, mental status, SpO₂, lung sounds, sputum, baseline O₂ use.
- Exacerbation: controlled O₂, short-acting bronchodilators, systemic corticosteroids, antibiotics if bacterial signs.
- Maintenance: LAMA/LABA bronchodilators; ICS added for selected patients with frequent exacerbations/eosinophilia.
- Monitor steroids for hyperglycemia, mood changes, infection risk; rinse mouth with inhaled steroids.
- Oxygen: follow ordered target, commonly 88-92% in CO₂ retainers; report increasing drowsiness or rising CO₂.
- Need-to-know: pursed-lip breathing and tripod positioning decrease air trapping and work of breathing.

PATIENT EDUCATION

- Smoking cessation is the most important disease-modifying intervention.
- Teach inhaler/nebulizer technique and medication schedule; rescue vs maintenance meds are not interchangeable.
- Energy conservation: pace activity, rest periods, pulmonary rehab, nutrition with small frequent meals.
- Vaccines: influenza, COVID, pneumococcal, Tdap/pertussis, RSV as age/risk appropriate.
- Call provider for increased sputum purulence, fever, worsening dyspnea, more rescue use, or swelling/weight gain.
- Seek emergency care for severe breathlessness, confusion, chest pain, cyanosis, or SpO₂ below ordered range.

ADDITIONAL NOTES:

- Priority: improve ventilation while avoiding excessive oxygen in chronic CO₂ retainers.
- Exam trap: COPD patients may have chronically abnormal ABGs; compare to baseline when available.
- Best long-term intervention: stop smoking; best diagnostic test: spirometry.