

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND ASTHMA

All respiratory diseases characterized by chronic obstruction to airflow fall under the broad classification of COPD, also known as chronic airflow limitations (CAL). COPD is a condition of chronic dyspnea with expiratory airflow limitation that does not significantly fluctuate. Within that broad category, the primary cause of the obstruction may vary; examples include airway inflammation, mucous plugging, narrowed airway lumina, or airway destruction. The term COPD includes chronic bronchitis and emphysema. Although asthma also involves airway inflammation and periodic narrowing of the airway lumina (hyperreactivity), the condition is the result of individual response to a wide variety of stimuli/triggers and is therefore episodic in nature with fluctuations/exacerbations of symptoms. Because patient response and therapy needs can be similar, asthma has been included in this plan of care.

Asthma: Also known as chronic reactive airway disease, asthma is characterized by reversible inflammation and constriction of bronchial smooth muscle, hypersecretion of mucus, and edema. Precipitating factors include allergens, emotional upheaval, cold weather, exercise, chemicals, medications, and viral infections.

Chronic bronchitis: Widespread inflammation of airways with narrowing or blocking of airways, increased production of mucoid sputum, and marked cyanosis.

Emphysema: Most severe form of COPD, characterized by recurrent inflammation that damages and eventually destroys alveolar walls to create large blebs or bullae (air spaces) and collapsed bronchioles on expiration (air-trapping).

Note: Chronic bronchitis and emphysema coexist in many patients and are most commonly seen in hospitalized COPD patients when acute exacerbations occur. Chronic bronchitis and emphysema are usually irreversible, although some effects can be mediated.

CARE SETTING

Primarily community level; however, severe exacerbations may necessitate emergency and/or inpatient stay.

RELATED CONCERNS

Heart failure: chronic

Pneumonia: microbial

Psychosocial aspects of care

Ventilatory assistance (mechanical)

Surgical intervention

Patient Assessment Database

ACTIVITY/REST

May report: Fatigue, exhaustion, malaise
Inability to perform basic activities of daily living (ADLs) because of breathlessness
Inability to sleep, need to sleep sitting up
Dyspnea at rest or in response to activity or exercise

May exhibit: Fatigue
Restlessness, insomnia
General debilitation/loss of muscle mass

CIRCULATION

May report: Swelling of lower extremities

May exhibit: Elevated blood pressure (BP)
Elevated heart rate/severe tachycardia, dysrhythmias
Distended neck veins (advanced disease)
Dependent edema, may not be related to heart disease
Faint heart sounds (due to increased anteroposterior [AP] chest diameter)
Skin color/mucous membranes may be pale or bluish/cyanotic; clubbing of nails and peripheral cyanosis; pallor (can indicate anemia)

EGO INTEGRITY

- May report:** Increased stress factors
Changes in lifestyle
Feelings of hopelessness, loss of interest in life
- May exhibit:** Anxious, fearful, irritable behavior, emotional distress
Apathy, dull affect, withdrawal

FOOD/FLUID

- May report:** Nausea (side effect of medication/mucus production)
Poor appetite/anorexia (emphysema)
Inability to eat because of respiratory distress
Persistent weight loss, decreased muscle mass/subcutaneous fat (emphysema) or weight gain may reflect edema (bronchitis, prednisone use)
- May exhibit:** Poor skin turgor
Dependent edema
Diaphoresis
Abdominal palpation may reveal hepatomegaly (bronchitis)

HYGIENE

- May report:** Decreased ability/increased need for assistance with ADLs
- May exhibit:** Poor hygiene, body odor

RESPIRATION

- May report:** Variable levels of dyspnea, such as insidious and progressive onset (predominant symptom in emphysema), especially on exertion; seasonal or episodic occurrence of breathlessness (asthma); sensation of chest tightness, inability to breathe (asthma); chronic “air hunger”
Persistent cough with sputum production (gray, white, or yellow), which may be copious (chronic bronchitis); intermittent cough episodes, usually nonproductive in early stages, although they may become productive (emphysema); paroxysms of cough (asthma)
History of recurrent pneumonia, long-term exposure to chemical pollution/respiratory irritants (e.g., cigarette smoke), or occupational dust/fumes (e.g., cotton, hemp, asbestos, coal dust, sawdust)
Familial and hereditary factors, i.e., deficiency of alpha₁-antitrypsin (emphysema)
Use of oxygen at night or continuously
- May exhibit:** Respirations: Usually rapid, may be shallow; prolonged expiratory phase with grunting, pursed-lip breathing (emphysema)
Assumption of three-point (“tripod”) position for breathing (especially with acute exacerbation of chronic bronchitis)
Use of accessory muscles for respiration, e.g., elevated shoulder girdle, retraction of supraclavicular fossae, flaring of nares
Chest may appear hyperinflated with increased AP diameter (barrel-shaped); minimal diaphragmatic movement
Breath sounds may be faint with expiratory wheezes (emphysema); scattered, fine, or coarse moist crackles (bronchitis); rhonchi, wheezing throughout lung fields on expiration, and possibly during inspiration, progressing to diminished or absent breath sounds (asthma)
Percussion may reveal hyperresonance over lung fields (e.g., air-trapping with emphysema) or dullness over lung fields (e.g., consolidation, fluid, mucus)
Difficulty speaking sentences of more than four or five words at one time; loss of voice
Color: Pallor with cyanosis of lips, nailbeds; overall duskiness; ruddy color (chronic bronchitis, “blue bloaters”); normal skin color despite abnormal gas exchange and rapid respiratory rate (moderate emphysema, known as “pink puffers”)
Clubbing of fingernails (emphysema)

SAFETY

May report: History of allergic reactions or sensitivity to substances/environmental factors
Recent/recurrent infections
Flushing/perspiration (asthma)

SEXUALITY

May report: Decreased libido

SOCIAL INTERACTION

May report: Dependent relationship(s)
Insufficient support from/to partner/significant other (SO); lack of support systems
Prolonged disease or disability progression

May exhibit: Inability to converse/maintain voice because of respiratory distress
Limited physical mobility
Neglectful relationships with other family members
Inability to perform/inattention to employment responsibilities, absenteeism/confirmed disability

TEACHING/LEARNING

May report: Use/misuse of respiratory drugs
Smoking/difficulty stopping smoking; chronic exposure to second-hand smoke, smoking substances other than tobacco
Regular use of alcohol
Failure to improve

Discharge plan considerations: **DRG projected mean length of inpatient stay: 5.2 days**
Episodic or long-term assistance with shopping, transportation, self-care needs, homemaker/home maintenance tasks
Changes in medication/therapeutic treatments, use of supplemental oxygen, ventilator support

Refer to section at end of plan for postdischarge considerations.

DIAGNOSTIC STUDIES

Chest x-ray: May reveal hyperinflation of lungs, flattened diaphragm, increased retrosternal air space, decreased vascular markings/bullae (emphysema), increased bronchovascular markings (bronchitis), normal findings during periods of remission (asthma).

Pulmonary function tests: Done to determine cause of dyspnea, whether functional abnormality is obstructive or restrictive, to estimate degree of dysfunction and to evaluate effects of therapy, e.g., bronchodilators. Exercise pulmonary function studies may also be done to evaluate activity tolerance in those with known pulmonary impairment/progression of disease.

The forced expiratory volume over 1 second (FEV₁): Reduced FEV₁ not only is the standard way of assessing the clinical course and degree of reversibility in response to therapy, but also is an important predictor of prognosis.

Total lung capacity (TLC), functional residual capacity (FRC), and residual volume (RV): May be increased, indicating air-trapping. In obstructive lung disease, the RV will make up the greater portion of the TLC.

Arterial blood gases (ABGs): Determines degree and severity of disease process, e.g., most often PaO₂ is decreased, and PaCO₂ is normal or increased in chronic bronchitis and emphysema, but is often decreased in asthma; pH normal or acidotic, mild respiratory alkalosis secondary to hyperventilation (moderate emphysema or asthma).

D_L CO test: Assesses diffusion in lungs. Carbon monoxide is used to measure gas diffusion across the alveocapillary membrane. Because carbon monoxide combines with hemoglobin 200 times more easily than oxygen, it easily affects the alveoli and small airways where gas exchange occurs. Emphysema is the only obstructive disease that causes diffusion dysfunction.

Bronchogram: Can show cylindrical dilation of bronchi on inspiration; bronchial collapse on forced expiration (emphysema); enlarged mucous ducts (bronchitis).

Lung scan: Perfusion/ventilation studies may be done to differentiate between the various pulmonary diseases. COPD is characterized by a mismatch of perfusion and ventilation (i.e., areas of abnormal ventilation in area of perfusion defect).

Complete blood count (CBC) and differential: Increased hemoglobin (advanced emphysema), increased eosinophils (asthma).

Blood chemistry: alpha₁-antitrypsin is measured to verify deficiency and diagnosis of primary emphysema.

Sputum culture: Determines presence of infection, identifies pathogen.

Cytologic examination: Rules out underlying malignancy or allergic disorder.

Electrocardiogram (ECG): Right axis deviation, peaked P waves (severe asthma); atrial dysrhythmias (bronchitis), tall, peaked P waves in leads II, III, AVF (bronchitis, emphysema); vertical QRS axis (emphysema).

Exercise ECG, stress test: Helps in assessing degree of pulmonary dysfunction, evaluating effectiveness of bronchodilator therapy, planning/evaluating exercise program.

NURSING PRIORITIES

1. Maintain airway patency.
2. Assist with measures to facilitate gas exchange.
3. Enhance nutritional intake.
4. Prevent complications, slow progression of condition.
5. Provide information about disease process/prognosis and treatment regimen.

DISCHARGE GOALS

1. Ventilation/oxygenation adequate to meet self-care needs.
2. Nutritional intake meeting caloric needs.
3. Infection treated/prevented.
4. Disease process/prognosis and therapeutic regimen understood.
5. Plan in place to meet needs after discharge.

NURSING DIAGNOSIS: Airway Clearance, ineffective

May be related to

Bronchospasm

Increased production of secretions; retained secretions; thick, viscous secretions

Decreased energy/fatigue

Possibly evidenced by

Statement of difficulty breathing

Changes in depth/rate of respirations, use of accessory muscles

Abnormal breath sounds, e.g., wheezes, rhonchi, crackles

Cough (persistent), with/without sputum production

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Respiratory Status: Airway Patency (NOC)

Maintain patent airway with breath sounds clear/clearing.

Demonstrate behaviors to improve airway clearance, e.g., cough effectively and expectorate secretions.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Airway Management (NIC)</p> <p>Independent</p> <p>Auscultate breath sounds. Note adventitious breath sounds, e.g., wheezes, crackles, rhonchi.</p> <p>Assess/monitor respiratory rate. Note inspiratory/expiratory ratio.</p> <p>Note presence/degree of dyspnea, e.g., reports of “air hunger,” restlessness, anxiety, respiratory distress, use of accessory muscles. Use 0–10 scale or American Thoracic Society’s “Grade of Breathlessness Scale” to rate breathing difficulty. Ascertain precipitating factors when possible. Differentiate acute episode from exacerbation of chronic dyspnea.</p> <p>Assist patient to assume position of comfort, e.g., elevate head of bed, have patient lean on overbed table or sit on edge of bed.</p> <p>Keep environmental pollution to a minimum, e.g., dust, smoke, and feather pillows, according to individual situation.</p> <p>Encourage/assist with abdominal or pursed-lip breathing exercises.</p> <p>Observe characteristics of cough, e.g., persistent, hacking, moist. Assist with measures to improve effectiveness of cough effort.</p> <p>Increase fluid intake to 3000 mL/day within cardiac tolerance. Provide warm/tepid liquids. Recommend intake of fluids between, instead of during, meals.</p>	<p>Some degree of bronchospasm is present with obstructions in airway and may/may not be manifested in adventitious breath sounds, e.g., scattered, moist crackles (bronchitis); faint sounds, with expiratory wheezes (emphysema); or absent breath sounds (severe asthma).</p> <p>Tachypnea is usually present to some degree and may be pronounced on admission or during stress/concurrent acute infectious process. Respirations may be shallow and rapid, with prolonged expiration in comparison to inspiration.</p> <p>Respiratory dysfunction is variable depending on the underlying process, e.g., infection, allergic reaction, and the stage of chronicity in a patient with established COPD. <i>Note:</i> Using a 0–10 scale to rate dyspnea aids in quantifying and tracking changes in respiratory distress. Rapid onset of acute dyspnea may reflect pulmonary embolus.</p> <p>Elevation of the head of the bed facilitates respiratory function by use of gravity; however, patient in severe distress will seek the position that most eases breathing. Supporting arms/legs with table, pillows, and so on helps reduce muscle fatigue and can aid chest expansion.</p> <p>Precipitators of allergic type of respiratory reactions that can trigger/exacerbate onset of acute episode.</p> <p>Provides patient with some means to cope with/control dyspnea and reduce air-trapping.</p> <p>Cough can be persistent but ineffective, especially if patient is elderly, acutely ill, or debilitated. Coughing is most effective in an upright or in a head-down position after chest percussion.</p> <p>Hydration helps decrease the viscosity of secretions, facilitating expectoration. Using warm liquids may decrease bronchospasm. Fluids during meals can increase gastric distension and pressure on the diaphragm.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Airway Management (NIC)</p> <p>Collaborative</p> <p>Administer medications as indicated:</p> <p>Beta-agonists: epinephrine (Adrenalin, Vaponefrin), albuterol (Proventil, Ventolin), terbutaline (Brethine), salmeterol (Serevent);pirbuterol (Maxair);</p> <p>Bronchodilators: e.g., anticholinergic agents:</p> <p>Methylxanthine derivatives, e.g., aminophylline, oxtriphylline (Choledyl), theophylline (Bronkodyl, Theo-Dur, Elixophyllin, Slo-Bid, Slo-Phyllin);</p> <p>Leukotriene antagonists: zafirlukast (Accolate); zileuton (Zyflo);</p> <p>Antiinflammatories [may be oral, nasal spray, MDI or DPI], e.g., beclomethasone (Vanceril, Beclovent), triamcinolone (Azmacort); fluticasone (Flovent); cromolyn (Intal); flunisolide (AeroBid); budesonide (Pulmicort); nedocromil (Tilade);</p> <p>Oral, IV, and inhaled steroids: methylprednisolone (Medrol), dexamethasone (Decadron);</p> <p>Antimicrobials;</p>	<p>Inhaled beta₂-adrenergic agonists are first-line therapies for rapid symptomatic improvement in severe Brethaire), isoetharine (Bronkosol, Bronkometer), bronchoconstriction. These medications relax smooth muscles and reduce local congestion, reducing airway spasm, wheezing, and mucus production. Medications may be oral, injected, or inhaled. Serevent is longer acting and can be used in combination with short-acting agents as needed.</p> <p>Inhaled anticholinergic agents are now considered the ipratropium (Atrovent); first-line drugs for patients with stable COPD because studies indicate they have a longer duration of action with less toxicity potential while still providing the effective relief of the beta-agonists.</p> <p>Decreases mucosal edema and smooth muscle spasm (bronchospasm) by indirectly increasing cyclic adenosine monophosphate (AMP). May also reduce muscle fatigue/respiratory failure by increasing diaphragmatic contractility. Use of theophylline may be of little or no benefit in presence of adequate beta-agonist regimen; however, it may sustain bronchodilation because effect of beta-agonist diminishes between doses.</p> <p>Reduces leukotriene activity to limit inflammatory response. In mild to moderate asthma, reduces need for inhaled beta₂-agonists and systemic corticosteroids. Not effective in acute exacerbations because there is no bronchodilator effect.</p> <p>Decreases local airway inflammation and edema by inhibiting effects of histamine and other mediators.</p> <p>May be used to prevent allergic reactions/inhibit release of histamine, reducing severity and frequency of airway spasm, respiratory inflammation, and dyspnea. <i>Note:</i> Inhaled corticosteroids may cause local immunosuppression resulting in oral candidiasis infection.</p> <p>Various antimicrobials may be indicated for control of respiratory infection/pneumonia. <i>Note:</i> Even in the absence of pneumonia, therapy may enhance airflow and improve outcome.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Airway Management (NIC)</p> <p>Collaborative</p> <p>Analgesics, cough suppressants, or antitussives, e.g., codeine, dextromethorphan products (Benlyn DM, Comtrex, Novahistine);</p> <p>Artificial surfactant, e.g., colfosceril palmitate (Exosurf).</p> <p>Provide supplemental humidification, e.g., ultrasonic nebulizer, aerosol room humidifier.</p> <p>Assist with respiratory treatments, e.g., spirometry, chest physiotherapy.</p> <p>Monitor/graph serial ABGs, pulse oximetry, chest x-ray.</p>	<p>Persistent, exhausting cough may need to be suppressed to conserve energy and permit patient to rest.</p> <p>Research suggests aerosol administration may enhance expectoration of sputum, improve pulmonary function, and reduce lung volumes (air-trapping).</p> <p>Humidity helps reduce viscosity of secretions, facilitating expectoration, and may reduce/prevent formation of thick mucous plugs in bronchioles.</p> <p>Breathing exercises help enhance diffusion; aerosol/nebulizer medications can reduce bronchospasm and stimulate expectoration. Postural drainage and percussion enhance removal of excessive/sticky secretions and improve ventilation of bottom lung segments. <i>Note:</i> Chest physiotherapy may aggravate bronchospasms in asthmatics.</p> <p>Establishes baseline for monitoring progression/regression of disease process and complications. <i>Note:</i> Pulse oximetry readings detect changes in saturation as they are happening, helping to identify trends before patient is symptomatic. However, studies have shown that the accuracy of pulse oximetry may be questioned if patient has severe peripheral vasoconstriction.</p>

<p>NURSING DIAGNOSIS: Gas Exchange, impaired</p> <p>May be related to</p> <p>Altered oxygen supply (obstruction of airways by secretions, bronchospasm; air-trapping)</p> <p>Alveoli destruction</p> <p>Possibly evidenced by</p> <p>Dyspnea</p> <p>Confusion, restlessness</p> <p>Inability to move secretions</p> <p>Abnormal ABG values (hypoxia and hypercapnia)</p> <p>Changes in vital signs</p> <p>Reduced tolerance for activity</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Respiratory Status: Gas Exchange (NOC)</p> <p>Demonstrate improved ventilation and adequate oxygenation of tissues by ABGs within patient's normal range and be free of symptoms of respiratory distress.</p> <p>Participate in treatment regimen within level of ability/situation.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Acid/Base Management (NIC)</p> <p>Independent</p> <p>Assess respiratory rate, depth. Note use of accessory muscles, pursed-lip breathing, inability to speak/converse.</p> <p>Elevate head of bed, assist patient to assume position to ease work of breathing. Include periods of time in prone position as tolerated. Encourage deep-slow or pursed-lip breathing as individually needed/ tolerated.</p> <p>Assess/routinely monitor skin and mucous membrane color.</p> <p>Encourage expectoration of sputum; suction when indicated.</p> <p>Auscultate breath sounds, noting areas of decreased airflow and/or adventitious sounds.</p> <p>Palpate for fremitus.</p> <p>Monitor level of consciousness/mental status. Investigate changes.</p> <p>Evaluate level of activity tolerance. Provide calm, quiet environment. Limit patient's activity or encourage bed/chair rest during acute phase. Have patient resume activity gradually and increase as individually tolerated.</p> <p>Evaluate sleep patterns, note reports of difficulties and whether patient feels well rested. Provide quiet environment, group care/monitoring activities to allow periods of uninterrupted sleep; limit stimulants, e.g., caffeine; encourage position of comfort.</p> <p>Monitor vital signs and cardiac rhythm.</p>	<p>Useful in evaluating the degree of respiratory distress and/or chronicity of the disease process.</p> <p>Oxygen delivery may be improved by upright position and breathing exercises to decrease airway collapse, dyspnea, and work of breathing. <i>Note:</i> Recent research supports use of prone position to increase Pao₂.</p> <p>Cyanosis may be peripheral (noted in nailbeds) or central (noted around lips/or earlobes). Dusky skin and central cyanosis indicate advanced hypoxemia.</p> <p>Thick, tenacious, copious secretions are a major source of impaired gas exchange in small airways. Deep suctioning may be required when cough is ineffective for expectoration of secretions.</p> <p>Breath sounds may be faint because of decreased airflow or areas of consolidation. Presence of wheezes may indicate bronchospasm/retained secretions. Scattered moist crackles may indicate interstitial fluid/cardiac decompensation.</p> <p>Decrease of vibratory tremors suggests fluid collection or air-trapping.</p> <p>Restlessness and anxiety are common manifestations of hypoxia. Worsening ABGs accompanied by confusion/somnolence are indicative of cerebral dysfunction due to hypoxemia.</p> <p>During severe/acute/refractory respiratory distress, patient may be totally unable to perform basic self-care activities because of hypoxemia and dyspnea. Rest interspersed with care activities remains an important part of treatment regimen. An exercise program is aimed at increasing endurance and strength without causing severe dyspnea and can enhance sense of well-being.</p> <p>Multiple external stimuli and presence of dyspnea may prevent relaxation and inhibit sleep.</p> <p>Tachycardia, dysrhythmias, and changes in BP can reflect effect of systemic hypoxemia on cardiac function.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Acid/Base Management (NIC)</p> <p>Collaborative</p> <p>Monitor/graph serial ABGs and pulse oximetry.</p> <p>Administer supplemental oxygen judiciously as indicated by ABG results and patient tolerance.</p> <p>Administer antianxiety, sedative, or narcotic agents with caution.</p> <p>Assist with noninvasive positive pressure ventilation(NIPPV) or intubation, institution/maintenance of mechanical ventilation; transfer to critical care area depending on patient directives.</p> <p>Prepare for surgical intervention as appropriate.</p>	<p>Paco₂ usually elevated (bronchitis, emphysema), and Pao₂ is generally decreased, so that hypoxia is present in a greater or lesser degree. <i>Note:</i> A “normal” or increased Paco₂ signals impending respiratory failure for asthmatics.</p> <p>May correct/prevent worsening of hypoxia. <i>Note:</i> In chronic emphysema, patient’s respiratory drive is determined by the CO₂ level and may be eliminated by excess elevation of Pao₂.</p> <p>May be used to control anxiety/restlessness, which increases oxygen consumption/demand, exacerbating dyspnea. Must be monitored closely because depressive effect may lead to respiratory failure.</p> <p>Development of/impending respiratory failure requires prompt life-saving measures. <i>Note:</i> NIPPV provides ventilatory support by means of positive pressure typically through a nasal mask. It may be useful in the home setting as well to treat chronic respiratory failure or limit acute exacerbations in patients who are able to maintain spontaneous respiratory effort.</p> <p>Screened candidates (those with severe dyspnea/end-stage emphysema with FEV1 less than 35% of the predicted value despite maximal medical therapy, with the ability to complete preoperative pulmonary rehabilitation programs) may benefit from lung volume reduction surgery (LVRS) in which hyperinflated giant bullae/cysts are removed, e.g., those occupying at least one-third of the involved lobe, or areas of lung tissue with small cystic disease. In the absence of fibrosis, this procedure removes ineffective lung tissue, allowing for better lung expansion and elastic recoil, enhanced blood flow to healthy tissues (correction of ventilation-perfusion mismatch), improved respiratory muscle efficiency, and increased venous return to the right ventricle.</p>

NURSING DIAGNOSIS: Nutrition: imbalanced, less than body requirements

May be related to

Dyspnea; sputum production
Medication side effects; anorexia, nausea/vomiting
Fatigue

Possibly evidenced by

Weight loss; loss of muscle mass, poor muscle tone
Reported altered taste sensation; aversion to eating, lack of interest in food

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Nutritional Status (NOC)

Display progressive weight gain toward goal as appropriate.
Demonstrate behaviors/lifestyle changes to regain and/or maintain appropriate weight.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Nutrition Therapy (NIC)</p> <p>Independent</p> <p>Assess dietary habits, recent food intake. Note degree of difficulty with eating. Evaluate weight and body size (mass).</p> <p>Auscultate bowel sounds.</p> <p>Give frequent oral care, remove expectorated secretions promptly, provide specific container for disposal of secretions and tissues.</p> <p>Encourage a rest period of 1 hr before and after meals. Provide frequent small feedings.</p> <p>Avoid gas-producing foods and carbonated beverages.</p> <p>Avoid very hot or very cold foods.</p>	<p>Patient in acute respiratory distress is often anorectic because of dyspnea, sputum production, and medications. In addition, many COPD patients habitually eat poorly, even though respiratory insufficiency creates a hypermetabolic state with increased caloric needs. As a result, patient often is admitted with some degree of malnutrition. People who have emphysema are often thin with wasted musculature.</p> <p>Diminished/hypoactive bowel sounds may reflect decreased gastric motility and constipation (common complication) related to limited fluid intake, poor food choices, decreased activity, and hypoxemia.</p> <p>Noxious tastes, smells, and sights are prime deterrents to appetite and can produce nausea and vomiting with increased respiratory difficulty.</p> <p>Helps reduce fatigue during mealtime, and provides opportunity to increase total caloric intake.</p> <p>Can produce abdominal distension, which hampers abdominal breathing and diaphragmatic movement and can increase dyspnea.</p> <p>Extremes in temperature can precipitate/aggravate coughing spasms.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Nutrition Therapy (NIC)</p> <p>Independent</p> <p>Weigh as indicated.</p> <p>Collaborative</p> <p>Consult dietitian/nutritional support team to provide easily digested, nutritionally balanced meals by appropriate means, e.g., oral, supplemental/tube feedings, parenteral nutrition. (Refer to CP: Total Nutritional Support: Parenteral/Enteral Feeding)</p> <p>Review laboratory studies, e.g., serum albumin/prealbumin, transferrin, amino acid profile, iron, nitrogen balance studies, glucose, liver function studies, electrolytes.</p> <p>Administer supplemental oxygen during meals as indicated.</p>	<p>Useful in determining caloric needs, setting weight goal, and evaluating adequacy of nutritional plan. <i>Note:</i> Weight loss may continue initially, despite adequate intake, as edema is resolving.</p> <p>Method of feeding and caloric requirements are based on individual situation/needs to provide maximal nutrients with minimal patient effort/energy expenditure.</p> <p>Evaluates/treats deficits and monitors effectiveness of nutritional therapy.</p> <p>Decreases dyspnea and increases energy for eating, enhancing intake.</p>

<p>NURSING DIAGNOSIS: Infection, risk for</p> <p>Risk factors may include</p> <p>Inadequate primary defenses (decreased ciliary action, stasis of secretions)</p> <p>Inadequate acquired immunity (tissue destruction, increased environmental exposure)</p> <p>Chronic disease process</p> <p>Malnutrition</p> <p>Possibly evidenced by</p> <p>[Not applicable; presence of signs and symptoms establishes an <i>actual</i> diagnosis.]</p> <p>DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:</p> <p>Knowledge: Infection Control (NOC)</p> <p>Verbalize understanding of individual causative/risk factors.</p> <p>Identify interventions to prevent/reduce risk of infection.</p> <p>Demonstrate techniques, lifestyle changes to promote safe environment.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Infection Protection (NIC)</p> <p>Independent</p> <p>Monitor temperature.</p> <p>Review importance of breathing exercises, effective cough, frequent position changes, and adequate fluid intake.</p> <p>Observe color, character, odor of sputum.</p> <p>Demonstrate and assist patient in disposal of tissues and sputum. Stress proper handwashing (nurse and patient), and use gloves when handling/disposing of tissues, sputum containers.</p> <p>Monitor visitors; provide masks as indicated.</p> <p>Encourage balance between activity and rest.</p> <p>Discuss need for adequate nutritional intake.</p> <p>Recommend rinsing mouth with water and spitting, not swallowing, or use of spacer on mouthpiece of inhaled corticosteroids.</p>	<p>Fever may be present because of infection and/or dehydration.</p> <p>These activities promote mobilization and expectoration of secretions to reduce risk of developing pulmonary infection.</p> <p>Odorous, yellow, or greenish secretions suggest the presence of pulmonary infection.</p> <p>Prevents spread of fluid-borne pathogens.</p> <p>Reduces potential for exposure to infectious illnesses, e.g., upper respiratory infection (URI).</p> <p>Reduces oxygen consumption/demand imbalance, and improves patient's resistance to infection, promoting healing.</p> <p>Malnutrition can affect general well-being and lower resistance to infection.</p> <p>Reduces localized immunosuppressive effect of drug and risk of oral candidiasis.</p>
<p>Collaborative</p> <p>Obtain sputum specimen by deep coughing or suctioning for Gram's stain, culture/sensitivity.</p> <p>Administer antimicrobials as indicated.</p>	<p>Done to identify causative organism and susceptibility to various antimicrobials.</p> <p>May be given for specific organisms identified by culture and sensitivity, or be given prophylactically because of high risk.</p>

NURSING DIAGNOSIS: Knowledge, deficient [Learning Need] regarding condition, treatment, self-care, and discharge needs

May be related to

Lack of information/unfamiliarity with information resources
Information misinterpretation
Lack of recall/cognitive limitation

Possibly evidenced by

Request for information
Statement of concerns/misconception
Inaccurate follow-through of instructions
Development of preventable complications

DESIRED OUTCOMES/EVALUATION CRITERIA—PATIENT WILL:

Knowledge: Illness Care (NOC)

Verbalize understanding of condition/disease process and treatment.
Identify relationship of current signs/symptoms to the disease process and correlate these with causative factors.
Initiate necessary lifestyle changes and participate in treatment regimen.

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p> <p>Independent</p> <p>Explain/reinforce explanations of individual disease process. Encourage patient/SO to ask questions.</p> <p>Instruct/reinforce rationale for breathing exercises, coughing effectively, and general conditioning exercises.</p> <p>Stress importance of oral care/dental hygiene.</p> <p>Discuss importance of avoiding people with active respiratory infections. Stress need for routine influenza/pneumococcal vaccinations.</p> <p>Discuss individual factors that may trigger or aggravate condition, e.g., excessively dry air, wind, environmental temperature extremes, pollen, tobacco smoke, aerosol sprays, air pollution. Encourage patient/SO to explore ways to control these factors in and around the home and work setting.</p>	<p>Decreases anxiety and can lead to improved participation in treatment plan.</p> <p>Pursed-lip and abdominal/diaphragmatic breathing exercises strengthen muscles of respiration, help minimize collapse of small airways, and provide the individual with means to control dyspnea. General conditioning exercises increase activity tolerance, muscle strength, and sense of well-being.</p> <p>Decreases bacterial growth in the mouth, which can lead to pulmonary infections.</p> <p>Decreases exposure to and incidence of acquired acute URIs.</p> <p>These environmental factors can induce/aggravate bronchial irritation, leading to increased secretion production and airway blockage.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Disease Process (NIC)</p> <p>Independent</p> <p>Review the harmful effects of smoking, and advise cessation of smoking by patient and/or SO.</p> <p>Provide information about activity limitations and alternating activities with rest periods to prevent fatigue; ways to conserve energy during activities (e.g., pulling instead of pushing, sitting instead of standing while performing tasks); use of pursed-lip breathing, side-lying position, and possible need for supplemental oxygen during sexual activity.</p> <p>Discuss importance of medical follow-up care, periodic chest x-rays, sputum cultures.</p> <p>Review oxygen requirements/dosage for patient who is discharged on supplemental oxygen. Discuss safe use of oxygen and refer to supplier as indicated.</p> <p>Instruct patient/SO in use of NIPPV as appropriate. Problem-solve possible side effects and identify adverse signs/symptoms, e.g., increased dyspnea, fatigue, daytime drowsiness, or headaches on awakening.</p> <p>Instruct asthmatic patient in use of peak flow meter, as appropriate.</p> <p>Provide information/encourage participation in support groups, e.g., American Lung Association, public health department.</p> <p>Refer for evaluation of home care if indicated. Provide a detailed plan of care and baseline physical assessment to home care nurse as needed on discharge from acute care.</p>	<p>Cessation of smoking may slow/halt progression of COPD. Even when patient wants to stop smoking, support groups and medical monitoring may be needed. <i>Note:</i> Research studies suggest that “side-stream” or “second-hand” smoke can be as detrimental as actually smoking.</p> <p>Having this knowledge can enable patient to make informed choices/decisions to reduce dyspnea, maximize activity level, perform most desired activities, and prevent complications.</p> <p>Monitoring disease process allows for alterations in therapeutic regimen to meet changing needs and may help prevent complications.</p> <p>Reduces risk of misuse (too little/too much) and resultant complications. Promotes environmental/physical safety.</p> <p>NIPPV may be used at night/periodically during day to decrease CO₂ level, improve quality of sleep, and enhance functional level during the day. Signs of increasing CO₂ level indicate need for more aggressive therapy.</p> <p>Peak flow level can drop before patient exhibits any signs/symptoms of asthma during the “first time” after exposure to a trigger. Regular use of the peak flow meter may reduce the severity of the attack because of earlier intervention.</p> <p>These patients and their SOs may experience anxiety, depression, and other reactions as they deal with a chronic disease that has an impact on their desired lifestyle. Support groups and/or home visits may be desired or needed to provide assistance, emotional support, and respite care.</p> <p>Provides for continuity of care. May help reduce frequency of rehospitalization.</p>

ACTIONS/INTERVENTIONS	RATIONALE
<p>Teaching: Prescribed Medications (NIC)</p> <p>Independent</p> <p>Discuss respiratory medications, side effects, adverse reactions.</p> <p>Demonstrate technique for using a metered-dose inhaler (MDI), such as how to hold it, taking 2–5 min between puffs, cleaning the inhaler.</p> <p>Devise system for recording prescribed intermittent drug/inhaler usage.</p> <p>Recommend avoidance of sedative antianxiety agents unless specifically prescribed/approved by physician treating respiratory condition.</p>	<p>Frequently these patients are simultaneously on several respiratory drugs that have similar side effects and potential drug interactions. It is important that patient understand the difference between nuisance side effects (medication continued) and untoward or adverse side effects (medication possibly discontinued/dosage changed).</p> <p>Proper administration of drug enhances delivery and effectiveness.</p> <p>Reduces risk of improper use/overdosage of prn medications, especially during acute exacerbations, when cognition may be impaired.</p> <p>Although patient may be nervous and feel the need for sedatives, these can depress respiratory drive and protective cough mechanisms. <i>Note:</i> These drugs may be used prophylactically when patient is unable to avoid situations known to increase stress/trigger respiratory response.</p>

POTENTIAL CONSIDERATIONS following acute hospitalization (dependent on patient's age, physical condition/presence of complications, personal resources, and life responsibilities)

Self-Care deficit, specify—intolerance to activity, decreased strength/endurance, depression, severe anxiety.
Home Maintenance, ineffective—intolerance to activity, inadequate support system, insufficient finances, unfamiliarity with neighborhood resources.
Infection, risk for—decreased ciliary action, stasis of secretions, tissue destruction, increased environmental exposure, chronic disease process, malnutrition.