

- Chapter 31
- Drugs Used to Treat Lower Respiratory Disease
- Learning Objectives
- Describe the physiology of respirations
- Compare the physiologic responses of the respiratory system to emphysema, chronic bronchitis, and asthma
- Identify components of blood gases
- Distinguish the mechanisms of action of expectorants, antitussives, and mucolytic agents
- Lower Respiratory Tract Anatomy and Physiology
- Larynx
- Trachea
- Bronchus
- Arterioles
- Bronchiole
- Alveolus
- The Respiratory Tract and the Alveoli
- Common Lower Respiratory Diseases
- Chronic obstructive pulmonary disease (COPD)
- Chronic airflow limitation disease (CALD)
- Asthma
- Chronic bronchitis

- Emphysema
- Drug Therapy for Lower Respiratory Diseases
- Expectorants
- Antitussives
- Mucolytic agents
- Antiinflammatory agents
- Immunomodulators
- Learning Objectives
- Cite nursing assessments used to evaluate the respiratory status of a patient
- Review the procedures for administration of medication by inhalation
- Implement patient education for patients receiving drug therapy for lower respiratory disease
- Learning Objectives (cont'd)
- State the nursing assessments needed to monitor therapeutic response and the development of side effects to expect or report from expectorant, antitussive, and mucolytic therapy
- Nursing Process for Lower Respiratory Disease
- Assessment
 - History, description, medications, description of current symptoms, respiratory assessment, inspection, palpation
- Planning

- Medications, hydration, respiratory and cardiovascular assessment, laboratory/diagnostic studies
- Implementation
- Patient Education and Health Promotion
- Understand how to use peak flowmeter
- Avoid irritants
- Adjust physical activity
- Adjust nutritional patterns
- Prevent infections
- Increase fluid intake
- Expectorants: Guaifenesin
- Actions: enhances output of respiratory tract fluid
- Uses: relieves dry, nonproductive cough
 - Removes mucous plugs from respiratory tract
- Therapeutic outcomes: reduced frequency of nonproductive cough
- Nursing process for guaifenesin
 - Premedication assessment: record cough characteristics
 - Planning: availability
 - Implementation: tablets and liquids
 - Evaluation: side effects and drug interactions
- Expectorants
- Potassium iodide

- Actions: increases bronchial gland secretions
- Uses: treats chronic pulmonary diseases
- Therapeutic outcomes: reduces mucus viscosity
- Nursing process for potassium iodide
 - Premedication assessment: record cough characteristics, note pregnancy
 - Planning: availability
 - Implementation: liquid
 - Evaluation: expected side effects
- Expectorants: Saline Solutions
- Actions
 - Hydrates mucus, reduces viscosity
- Uses
 - Effective expectorants when administered by nebulization
- Therapeutic outcomes
 - Moisturized mucous membranes
- Antitussive Agents
- Actions: suppress cough center in brain
- Uses: suppress disruptive spasms
- Therapeutic outcomes: reduce coughs
- Nursing process for antitussive agents
 - Premedication assessment: record characteristics of cough
 - Planning: availability
 - Implementation: capsules, tablets, syrup, liquid
 - Evaluation: side effects, drug interactions

- Mucolytic Agents: Acetylcysteine
- Actions: dissolves chemical bonds in mucus
- Uses: dissolves abnormally viscous mucus
 - In chronic emphysema, emphysema with bronchitis, asthmatic bronchitis, pneumonia
- Therapeutic outcomes: improved airway flow
- Nursing process for acetylcysteine therapy
 - Premedication assessment: record baseline vital signs
 - Planning: availability
 - Implementation
 - Evaluation: side effects, drug interactions
- Beta Adrenergic Bronchodilators
- Actions: stimulate beta receptors within smooth muscle of tracheobronchial tree
- Uses: reverse airway constriction
 - Mainstay of all asthma therapy
- Therapeutic outcomes: easier breathing
- Nursing process for beta adrenergic bronchodilators
 - Premedication assessment
 - Planning: availability
 - Implementation
 - Evaluation: side effects
- Anticholinergic Bronchodilating Agents: Ipratropium Bromide
- Actions: produces bronchodilation by competitive inhibition of cholinergic receptors on bronchial smooth muscle

- Uses: long-term treatment of reversible bronchospasm associated with COPD
- Therapeutic outcomes: easier breathing
- Nursing process for sympathomimetic bronchodilators
 - Premedication assessment
 - Planning: availability
 - Implementation
 - Evaluation: side effects
- Anticholinergic Bronchodilating Agents: Tiotropium Bromide
- Administered by aerosol inhalation
- Produces bronchodilation by competitive inhibition of cholinergic receptors on bronchial smooth muscle
- Longer in duration of action than ipratropium
- Used once daily for long-term treatment of reversible bronchospasm associated with COPD, including bronchitis and emphysema
- Xanthine-Derivative Bronchodilating Agents
- Actions: act on tracheobronchial tree to dilate bronchi
- Uses: reverse airway constriction
- Therapeutic outcomes: easier breathing
- Nursing process for xanthine-derivative bronchodilating agents
 - Premedication assessment: obtain, record baseline vital signs
 - Planning: availability
 - Implementation
 - Evaluation: side effects, drug interactions

- Respiratory Antiinflammatory Agents: Corticosteroids
- Actions: treat obstructive lung disease
- Uses: given to patients unresponsive to sympathomimetic agents or xanthine derivatives
- Therapeutic outcomes: easier breathing with less effort
- Nursing process for corticosteroids
 - Premedication assessment: inspect oral cavity for infection
 - Planning: availability
 - Implementation
 - Evaluation: side effects
- Antileukotriene Agents: Montelukast-Singulair
- Actions: selective and competitive receptor antagonist of cysteinyl leukotriene receptor
- Uses: with other medications to treat asthma
- Therapeutic outcomes: reduces acute asthma
- Nursing process for montelukast
 - Premedication assessment: obtain, record baseline vital signs
 - Planning: availability
 - Implementation: tablets
 - Evaluation: side effects
- Antileukotriene Agents: Zafirlukast-Accolate
- Actions: selective and competitive receptor antagonist of the cysteinyl leukotriene receptor
- Uses: with other medications for asthma
- Therapeutic outcomes: fewer episodes of acute asthmatic symptoms

- Nursing process for zafirlukast
 - Premedication assessment
 - Planning: availability
 - Implementation
 - Evaluation: side effects
- Immunomodulators: Omalizumab
- Actions: inhibits chemicals that can lead to asthma
- Uses: patients at least 12 years with asthma with a positive skin test to airborne allergens
- Therapeutic outcomes: reduced frequency of acute asthmatic exacerbations
- Nursing process for omalizumab
 - Premedication assessment: determine allergy history
 - Planning: availability
 - Implementation: dissolve powder for subcutaneous injection
 - Evaluation: side effects
- Miscellaneous Antiinflammatory Agents: Cromolyn Sodium-Intal
- Actions: inhibits release of histamines and other mediators of inflammation
- Uses: treats patients with severe bronchial asthma or allergic rhinitis
- Therapeutic outcomes: reduced asthmatic attacks
- Nursing process for cromolyn sodium
 - Premedication assessment
 - Planning: availability
 - Implementation
 - Evaluation: side effects

- Miscellaneous Antiinflammatory Agents: Nedocromil Sodium-Tilade
- Actions: prevents release of histamines and other mediators that cause inflammation
- Uses: treats patients with bronchial asthma
- Therapeutic outcomes: fewer episodes of acute asthmatic symptoms
- Nursing process for nedocromil sodium
 - Premedication assessment
 - Planning: availability
 - Implementation
 - Evaluation: side effects