

# ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME \_\_\_\_\_

MEDICATION Albuterol inhaler

REVIEW MODULE CHAPTER \_\_\_\_\_

CATEGORY CLASS Adrenergic

## PURPOSE OF MEDICATION

### Expected Pharmacological Action

Binds to beta2-adrenergic receptors in airway smooth muscle, leading to activation of adenylyl cyclase and increased levels of cyclic-3', 5'-adenosine monophosphate (cAMP). Increases in cAMP activate kinases, which inhibit the phosphorylation of myosin and decrease intracellular calcium. Decreased intracellular calcium relaxes smooth muscle airways. Relaxation of airway smooth muscle with subsequent bronchodilation. Relatively selective for beta2 (pulmonary) receptors.

### Therapeutic Use

Used as a bronchodilator to control and prevent reversible airway obstruction caused by asthma or COPD. Inhaln: Used as a quick-relief agent for acute bronchospasm and for prevention of exercise-induced bronchospasm.

PO: Used as a long-term control agent in patients with chronic/persistent bronchospasm. Used as a bronchodilator to control and prevent reversible airway obstruction caused by asthma or COPD.

Inhaln: Used as a quick-relief agent for acute bronchospasm and for prevention of exercise-induced bronchospasm. PO: Used as a long-term control agent in patients with chronic/persistent bronchospasm.

### Complications

CNS: nervousness, restlessness, tremor, headache, insomnia, hyperactivity in children.  
Resp: PARADOXICAL BRONCHOSPASM (excessive use of inhalers).  
CV: chest pain, palpitations, angina, arrhythmias, hypertension.  
GI: nausea, vomiting.  
Endo: hyperglycemia.  
F and E: hypokalemia. Neuro: tremor.

### Contraindications/Precautions

Contraindicated in: Hypersensitivity to adrenergic amines.

Use Cautiously in: Cardiac disease; Hypertension; Hyperthyroidism; Diabetes; Glaucoma; Seizure disorders; Excess inhaler use may lead to tolerance and paradoxical bronchospasm; Lactation;

### Interactions

Drug-Drug: Concurrent use with other adrenergic agents will have increased adrenergic side effects. Use with MAO inhibitors may lead to hypertensive crisis. Beta blockers may negate therapeutic effect. May decrease serum digoxin levels. Cardiovascular effects are potentiated in patients receiving tricyclic antidepressants. Risk of hypokalemia increases concurrent use of potassium-losing diuretics. Hypokalemia increases the risk of digoxin toxicity.

Drug-Natural Products: Use with caffeine-containing herbs (cola nut, guarana, tea, coffee) stimulant effect.

### Evaluation of Medication Effectiveness

Prevention or relief of bronchospasm

### Medication Administration

#### Inhalation

### Nursing Interventions

Assess lung sounds, pulse, and BP before administration and during peak of medication. Note amount, color, and character of sputum produced. Monitor pulmonary function tests before initiating therapy and periodically during therapy. Observe for paradoxical bronchospasm (wheezing). If condition occurs, withhold medication and notify health care professional immediately.

### Client Education

Take as directed. To contact health care professional immediately if shortness of breath is not relieved by medication or is accompanied by diaphoresis, dizziness, palpitations, or chest pain. Instruct patient to prime unit with 4 sprays before using and to discard canister after 200 sprays. Actuators should not be changed among products.

Inform patient that these products contain hydrofluoralkane (HFA) and the propellant and are described as non-CFC or CFC-free (contain no chlorofluorocarbons).