Diseases such as asthma, **chronic obstructive pulmonary disease (COPD),** and tuberculosis (TB) can cause dyspnea or impair the lung's ability to function. Pulmonary medications can improve pulmonary function in these patients (Table 18-1).

PULMONARY MEDICATIONS

The medications used to treat pulmonary infections or disease are determined by the part of the pulmonary system that is affected. Some medications liquefy secretions, and others dry them up. Some medications act locally, whereas others act systemically (see the Master the Essentials table for descriptions of the most common pulmonary system drugs).

Mast Cell Stabilizers

Mast cell stabilizers inhibit allergens binding to mast cells (a type of white blood cell) from bursting open and releasing substances that cause inflammation. These medications are used to prevent or decrease the occurrence of asthma attacks. They do not cure the disease or help during an acute attack, but rather they decrease the body's reaction to asthma triggers, such as air pollutants, respiratory infections, chemicals, food allergies, pollen, dust, mold, animal dander, and stress.

Cromolyn sodium (Intal) and nedocromil sodium (Tilade) are examples of mast cell stabilizers. These medications should not be used for acute asthma attacks, but as a preventive measure. They take 2 to 6 weeks to start working. They are administered via a nebulizer or metered-dose inhaler most commonly, but they also come in an intranasal form for seasonal allergies.

TABLE 18.1 Common Pulmonary Diseases

Pulmonary Disease	Overview	Symptoms	Medications
Asthma	Asthma is a disease caused by an increased reaction of the tracheobronchial tree to stimuli that results in episodic narrowing and inflammation of the airways. Although the cause is not always known, the airways are chronically inflamed.	Breathlessness, air hunger (pursing of lips, gasping for air), coughing, and dyspnea are common symptoms. If asthma continues for a long time, status asthmaticus, or an asthma attack that does not stop, becomes a medical emergency.	Antiasthmatic medications target both the bronchoconstriction and the inflammation.
Chronic obstructive pulmonary disease (COPD)	The main COPD diseases are chronic bronchitis and emphysema. Chronic bronchitis is an inflammation of the bronchial tree. In response to irritation, mucus floods the bronchi and impairs breathing. Emphysema occurs after years of chronic inflammation, when the bronchioles lose elasticity and the alveoli dilate beyond effectiveness. COPD is usually caused by tobacco smoking, both direct and second-hand. Irritants and pollutants in the air can also cause COPD. There is no cure for COPD.	Dyspnea and coughing occur, particularly a cough that is productive (one that brings up mucus).	A patient with COPD needs a variety of drugs to treat infections because the lungs, and their defenses, have been damaged. The patient also needs drugs to decrease the bronchospasm that is created by the chemical irritation and to control the chronic cough that comes from irritating the pharynx. Mucolytics and expectorants are usually indicated, along with oxygen therapy. Oxygen must be given only at low levels (4 L/min maximum). Higher levels may lead to dangerous CO_2 levels and cause the patient to stop breathing.

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