is considered secondary. Once the viruses gain entry, the incubation period is about 5 days, the most contagious period is about 3 days after symptoms begin, and the cold usually lasts about 7 days. Because of the way cold viruses are spread, frequent and thorough handwashing (by both infected and uninfected people) is the most important protective and preventive measure.

SINUSITIS

Sinusitis is inflammation of the paranasal sinuses, air cells that connect with the nasal cavity and are lined by similar mucosa. As in other parts of the respiratory tract, ciliated mucous membranes help move fluid and microorganisms out of the sinuses and into the nasal cavity. This movement becomes impaired when sinus openings are blocked by nasal swelling, and the impairment is considered a major cause of sinus infections. Another contributing factor is a lower oxygen content in the sinuses, which aids the growth of microorganisms and impairs local defense mechanisms. Rhinitis (inflammation and congestion of nasal mucosa) and upper respiratory tract infections are the most common causes of sinusitis. Symptoms may include moderate to severe headache, tenderness or pain in the affected sinus area, and fever.

COMMON SIGNS AND SYMPTOMS OF RESPIRATORY DISORDERS

- **Nasal congestion** is manifested by obstructed nasal passages ("stuffy nose") and nasal drainage ("runny nose"). It is a prominent symptom of the common cold and rhinitis (including allergic rhinitis; see Chap. 48). Nasal congestion results from dilation of the blood vessels in the nasal mucosa and engorgement of the mucous membranes with blood. At the same time, nasal membranes are stimulated to increase mucus secretion. Related symptomatic terms are *rhinorrhea* (secretions discharged from the nose) and *rhinitis* (inflammation of nasal mucosa, usually accompanied by nasal congestion, rhinorrhea, and sneezing).
- **Cough** is a forceful expulsion of air from the lungs. It is normally a protective reflex for removing foreign bodies, environmental irritants, or accumulated secretions from the respiratory tract. The cough reflex involves central and peripheral mechanisms. Centrally, the cough center in the medulla oblongata receives stimuli and initiates the reflex response (deep inspiration, closed glottis, buildup of pressure within the lungs, and forceful exhalation). Peripherally, cough receptors in the pharynx, larynx, trachea, or lungs may be stimulated by air, dryness of mucous membranes, or excessive secretions. A cough is productive when secretions are expectorated; it is nonproductive when it is dry and no sputum is expectorated.

  Cough is a prominent symptom of respiratory tract infections (eg, the common cold, influenza, bronchitis, pharyngitis) and chronic obstructive pulmonary diseases (eg, emphysema, chronic bronchitis).
- **Increased secretions** may result from excessive production or decreased ability to cough or otherwise remove secretions from the respiratory tract. Secretions may seriously impair respiration by obstructing airways and preventing air flow to and from alveoli, where gas exchange occurs. Secretions also may cause atelectasis (a condition in which part of the lung is airless and collapses) by blocking air flow, and they may cause or aggravate infections by supporting bacterial growth.

  Respiratory disorders characterized by retention of secretions include influenza, pneumonia, upper respiratory infections, acute and chronic bronchitis, emphysema, and acute attacks of asthma. Nonrespiratory conditions that predispose to secretion retention include immobility, debilitation, cigarette smoking, and postoperative status. Surgical procedures involving the chest or abdomen are most likely to be associated with retention of secretions because pain may decrease the client's ability to cough, breathe deeply, and ambulate.

DRUGS FOR RESPIRATORY DISORDERS

Numerous drugs are available and widely used to treat the symptoms of respiratory disorders. Many are nonprescription drugs and can be obtained alone or in combination products. Available products include nasal decongestants, antitussives, and expectorants.

Nasal Decongestants

Nasal decongestants are used to relieve nasal obstruction and discharge. Adrenergic (sympathomimetic) drugs are most often used for this purpose (see Chap. 18). These agents relieve nasal congestion and swelling by constricting arterioles and reducing blood flow to nasal mucosa. Oxymetazoline (Afrin) is a commonly used nasal spray; pseudoephedrine (Sudafed) is taken orally. Rebound nasal swelling can occur with excessive or extended use of nasal sprays (eg, >7 days, perhaps sooner).

Nasal decongestants are most often used to relieve rhinitis associated with respiratory infections or allergies. They also may be used to reduce local blood flow before nasal surgery and to aid visualization of the nasal mucosa during diagnostic examinations.

These drugs are contraindicated in clients with severe hypertension or coronary artery disease because of their cardiac stimulating and vasoconstricting effects. They also are contraindicated for clients with narrow-angle glaucoma and those taking tricyclic or monoamine oxidase inhibitor antidepressants. They must be used with caution in the presence of cardiac dysrhythmias, hyperthyroidism, diabetes mellitus, glaucoma, and prostatic hypertrophy.