

## **Pulmonary Disease Glossary**

Source: [National Jewish Medical and Research Center](#)

### **Aerosol**

A solution of a medication that is fluid droplets suspended in air and delivered as a mist or spray.

### **Air Trapping**

This is the air caught behind collapsed bronchials during expiration.

### **Airway Collapse**

Collapse or closure of branches of the bronchi. The collapse is caused by weakened bronchial walls that is the result of disease.

### **Airway Obstruction**

A narrowing or blocking of the passages that carry air into the lungs. COPD is classified as an obstructive airway disease.

### **Airways**

Passageways that carry oxygen into the lungs and carbon dioxide out of the lungs.

### **Alveolus**

Alveoli (plural for alveolus) are tiny, thin-walled air sac at the end of the bronchiole branches where oxygen crosses the capillaries into the bloodstream and carbon dioxide crosses from the bloodstream into the alveoli to be exhaled.

### **Aphonia**

Loss of voice.

### **Apnea**

Absence or cessation of breathing. (Stedman, 25th ed; Dorland, 27th ed)

### **Asbestosis**

A form of lung disease (pneumoconiosis) caused by inhaling fibers of asbestos and marked by interstitial fibrosis of the lung varying in extent from minor involvement of the basal areas to extensive scarring. It is associated with pleural mesothelioma and bronchogenic carcinoma. (Dorland, 27th ed)

### **Aspergillosis, Allergic Bronchopulmonary**

Aspergillosis of the lung occurring in an individual with long-standing bronchial asthma. It is characterized by pulmonary infiltrates, eosinophilia, elevated serum IgE and immediate type skin reactivity to aspergillus antigen.

### **Asthma**

Asthma is a chronic lung condition. During an asthma "attack" individuals experience labored breathing, wheezing, and/or coughing. During an asthmatic episode, the airway tubes become narrowed because of the excess production of mucus, swelling of the airway lining, or tightening of the muscles around the airways. The narrowing of the airways is reversible and can be completely relieved with bronchodilators.

### **Asthma, Exercise-Induced**

Asthma attacks following a period of exercise. Usually the induced attack is short-lived and

regresses spontaneously. The magnitude of postexertional airway obstruction is strongly influenced by the environment in which exercise is performed (i.e. inhalation of cold air during physical exertion markedly augments the severity of the airway obstruction; conversely, warm humid air blunts or abolishes it).

### **Asthmatic Bronchitis**

A condition where asthma and chronic bronchitis exist together.

### **Ataxia Telangiectasia**

A syndrome characterized by choreoathetosis beginning in childhood, progressive cerebellar ataxia, telangiectasis of conjunctiva and skin, slowly progressive mental deterioration and increasing cerebellar degeneration.

### **Atelectasis**

Collapse of all or part of a lung due to bronchial plugging or the chest cavity being opened to atmospheric pressure.

### **Atopic**

Relating to allergy or an allergic condition.

### **Autoimmune Diseases**

A disorder caused by an immune response directed against self antigens. Ideally there should be not only demonstrable circulating autoantibodies or cell-mediated immunity against autoantigens in conjunction with inflammatory lesions caused by immunologically competent cells or immune complexes in tissues containing the autoantigens, but also clinical or experimental evidence that the autoimmune process is pathogenic, not secondary to other tissue damage. In practice many diseases, such as systemic lupus Erythematosus and rheumatoid arthritis, are often classified as autoimmune diseases although their pathogenesis is unclear. (Dorland, 27th ed)

### **Bradypnea**

Decreased breathing rate, usually less than 10 breaths per minute.

### **Bronchi**

The larger air passages of the lungs arising from the terminal bifurcation of the trachea.

### **Bronchial Diseases**

Disorders of the bronchi, general or unspecified.

### **Bronchial Fistula**

An abnormal passage or communication between a bronchus and another part of the body.

### **Bronchial Hyperreactivity**

Tendency of the smooth muscle of the tracheobronchial tree to contract more intensely in response to a given stimulus than it does in the response seen in normal individuals. This condition is present in virtually all symptomatic patients with asthma. The most prominent manifestation of this smooth muscle contraction is a decrease in airway caliber that can be readily measured in the pulmonary function laboratory.

### **Bronchial Neoplasms**

Neoplasms or tumors of the bronchial tree.

## **Bronchial Spasm**

Spasmodic contraction of the smooth muscle of the bronchi.

## **Bronchiectasis**

In this condition there is chronic inflammation or degeneration of the bronchi or bronchioles. The walls of the bronchi are dilated (widened) and the bronchial walls have lost their elasticity (they are no longer pliable). The condition develops after frequent serious respiratory infections and is often accompanied by sinusitis, chronic cough and bloody sputum.

## **Bronchiolitis, Viral**

An acute inflammatory disease of the upper respiratory tract, caused by paramyxoviruses, occurring primarily in infants and young children; the viruses most commonly implicated are parainfluenza type 3 and respiratory syncytial virus.

## **Bronchitis**

Chronic or acute inflammation of the mucous membrane of the bronchial tubes. There is excess mucus secretion along with a cough and sputum production. This can cause narrowing and obstruction of the airway. Not all people with bronchitis, even chronic bronchitis develop COPD.

## **Bronchogenic Cyst**

A usually spherical cyst, arising as an embryonic out-pouching of the foregut or trachea. It is generally found in the mediastinum or lung and is usually asymptomatic unless it becomes infected.

## **Bronchoconstriction**

A tightening of the muscles that surround the bronchi and leads to narrowing of the airway.

## **Bronchodilator**

A medication that relaxes the smooth muscles of the bronchi and opens (widens) constricted (narrowed) airways.

## **Bronchopneumonia**

Acute inflammation of the walls of the smaller bronchial tubes, with varying amounts of pulmonary consolidation due to spread of the inflammation into peribronchiolar alveoli and the alveolar ducts. (Stedman, 25th ed)

## **Bronchopulmonary Dysplasia**

A chronic lung disease appearing in certain newborn infants treated for RESPIRATORY DISTRESS SYNDROME with mechanical ventilation and elevated concentration of inspired oxygen.

## **Bronchoscopy**

Bronchoscopy is a technique for examining the airways of the lungs. Using a flexible tube the width of a pencil (called a bronchoscope), physicians are able to explore the trachea, main stem bronchi, and some of the small bronchi. The bronchoscope has a video camera and a biopsy instrument on one end. You are admitted to special procedures and have an intravenous (IV) line placed. The doctor sprays numbing medicine into the back of your throat to make it easier for the bronchoscope to be placed. You will probably be given some medication through the IV to relax you as well. The doctor places the bronchoscope in your mouth and advances it into your throat and trachea. This procedure does not interfere with your ability to breathe. The doctor can see into your lungs by watching a screen that shows the view from the end of the bronchoscope. He can also take a sample of sputum or biopsy the lung tissue. At the end of the test the bronchoscope is removed. The test usually takes 30 minutes to one hour.

## **Carbon Dioxide (CO<sub>2</sub>)**

This gas is produced by the tissues as a waste product, and carried in the blood to the lungs to be exhaled. In the lungs CO<sub>2</sub> is exchanged for oxygen (O<sub>2</sub>).

## **Carcinoma, Bronchogenic**

A cancer of the lung, so-called because it arises from the epithelium of the bronchial tree. It is not a histologic designation despite the name.

## **Cardiopulmonary**

Referring to the heart and lungs.

## **Chest X-Ray (CXR)**

Chest x-rays are often done on people with COPD. The signs of COPD do not show up on x-rays in the early stages. As the disease progresses there are specific signs that are common.

Emphysema changes on chest x-rays include:

- A flattened diaphragm
- Abnormally large air spaces in the lungs
- Hyperinflated lungs in the upper areas
- Small heart (unless heart failure is present)

## **Chronic Bronchitis**

Chronic bronchitis is defined as the presence of a chronic cough and overproduction of sputum (phlegm) for at least three months a year for at least two successive years. Not all chronic bronchitis is classified as COPD. Chronic bronchitis that causes irreversible obstruction to airflow (COPD) is due to structural changes within the airway from inflammation. Symptoms of chronic bronchitis include:

- Coughing with excessive sputum production
- Shortness of breath with activity that progresses over time to shortness of breath at rest
- Dyspnea (unable to catch your breath) when lying down as the disease progresses, and requires sleeping in a chair
- Bluish tinge to skin (cyanosis) because of low oxygen levels in the blood (hypoxemia)
- Swelling from fluid accumulation caused by congestive heart failure

## **Cilia**

In healthy lungs, cilia (tiny hairs that line the lungs) move bacteria, pollutants, and other irritants upwards toward the oral up the airway so they can be expelled (coughed or breathed out). The cilia in people with COPD are damaged and cannot perform this function well enough or at all.

## **COPD (Chronic Obstructive Pulmonary Disease)**

A slowly progressive disease of the airways of the lungs that is characterized by gradual loss of lung function. The disease is an umbrella term that includes chronic bronchitis, emphysema, or combinations of both conditions. People who develop COPD have no symptoms until 50% of their lung function is damaged. As the disease progresses, people experience exacerbations that are characterized by:

- Worsening shortness of breath (dyspnea).
- Increased amount of sputum.
- Thick, purulent sputum.

COPD decreases one's quality of life and limits one's activities. Eventually bathing, brushing teeth, even eating cause increasing dyspnea. As the disease progresses, oxygen and carbon

dioxide exchange becomes more and more impaired. The blood has a low oxygen level (hypoxia) and a high carbon dioxide level (hypercapnea). The body tries to overcome these changes with:

- Increased breathing rate to breath in more oxygen and breath out more carbon dioxide
- Increased number of red blood cells to carry more oxygen in the blood
- Increased heart rate to pump more oxygen to the tissue

COPD can have frequent exacerbations and the development of serious and life-threatening conditions including acute respiratory failure, pulmonary hypertension (high blood pressure in the vessels of the lungs) and an impaired ability to think and remember things.

### **Cor Pulmonale**

Heart disease that is caused by high pressure in the pulmonary blood vessels (pulmonary hypertension). The disease is characterized by an enlarged right ventricle wall (right ventricular hypertrophy) and right heart failure.

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### **Cyanosis**

Cyanosis develops in people who have a poor supply of oxygen in their blood (hypoxemia). The oxygen that can be delivered to their tissues is also poor and they develop a bluish tinge to their skin, lips, mucus membranes, and nailbeds.

### **Dry Powder Inhaler (DPI)**

Dry powder inhalers deliver a measured dose of medication into the lungs and are similar to

metered dose inhalers. Inhaling causes the medication to be released in the form of a dry powder.

### **Dyspnea, Paroxysmal**

A form of respiratory distress related to posture (especially reclining at night) and usually attributed to congestive heart failure with pulmonary edema. It appears suddenly at night, usually wakening the patient after an hour or two of sleep. It is also called paroxysmal nocturnal dyspnea. (From Dorland, 27th ed; Stedman, 25th ed)

### **Emphysema**

Emphysema involves a gradual destruction of the alveoli (the grapelike clusters of air sacs that line the ends of bronchioles). The walls of the alveoli become inflamed and lose elasticity. Rather than nice clusters of grapes, larger pockets of dead air (called bullae) form. These bullae impair the ability to exchange oxygen and carbon dioxide. In addition, the ability to exhale normally is impaired and the lungs become hyperinflated. Because the ability to inhale is not impaired, oxygen and carbon dioxide levels in the blood are normal until the late stages of the disease.

- Symptoms of emphysema include:
- Shortness of breath with light exertion, minor coughing and minimal sputum production in early stages.
- Rapid and labored breathing, persistent shortness of breath with minimal activity or at rest in late stages
- Barrel-shaped chests from over inflated lungs (hyperinflation) due to air trapping
- Pinkish tinge to skin
- Involuntary weight loss

### **Farmer's Lung**

Systemic and pulmonary reactions resulting from inhalation of dust from moldy hay, threshing dust, or moldy straw, by persons who have become hypersensitive to antigens in the dust. It is most often associated with inhalation of spores of *Micromonospora faeni* or *Thermoactinomyces vulgaris*. (From Dorland, 27th ed)

### **Flexible Bronchoscopy**

A black, soft, rubber tube-like instrument which carries a camera, light and working channel. This instrument can turn and twist to negotiate contours of human airways. It allows doctors to look inside the airways, take pictures of abnormal areas and obtain sample-like brushings, washings and biopsies.

### **Hyperventilation**

When a person hyperventilates the breathing rate is fast and each breath is deep. This abnormal type of breathing causes more oxygen (O<sub>2</sub>) to be breathed in (inspired) and decreases the amount of carbon dioxide (CO<sub>2</sub>) in the blood.

### **Hypoventilation**

When a person hypoventilates, the respiratory rate is slow and each breath is shallow. This abnormal type of breathing causes decreased amounts of oxygen (O<sub>2</sub>) to be breathed in (inspired) and high levels of carbon dioxide (CO<sub>2</sub>) to accumulate in the blood.

### **Hypoxemia**

Inadequate oxygenation of the blood (oxygen in the blood (PaO<sub>2</sub>) is less than 55 mmHg or saturation of oxygen (SaO<sub>2</sub>) is less than 85%). Symptoms of hypoxemia include fast heart rate, anxiety, agitation forgetfulness, inability to concentrate, and changes in levels of consciousness.

**Hypoxia**

Oxygen is needed by all tissues in the body to do the work each is designed to do. Hypoxia exists when an inadequate or deficient amount of oxygen reaches the tissues.

**Inflammation**

The body's (immune system) protective response to an irritant. When there is injury or infection in the body the immune system responds and there is redness, warmth and swelling in the tissue. Chronic or long term inflammation causes the building of new connective tissue (thickening of the tissue) which can create many problems.

**Influenza**

An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia.

**Inhaler**

The dispenser for metered-dose medications.

**Laryngitis**

Inflammation of the larynx. This condition presents itself with dryness and soreness of the throat, difficulty in swallowing, cough, and hoarseness.

**Larynx**

An irregularly shaped, musculocartilaginous tubular structure lined with mucous membrane, located at the top of the trachea and below the root of the tongue and the hyoid bone. It is the essential sphincter guarding the entrance into the trachea and functioning secondarily as the organ of voice.

**Laser Bronchoscopy**

A very powerful and precise tool to destroy tumor occluding the airways and to control bleeding in the airways.

**Lung**

Either of the pair of organs occupying the cavity of the thorax that effect the aeration of the blood.

**Lung Abscess**

A complication of a localized area of pneumonia or when a neoplasm becomes necrotic and contains purulent material that cannot drain easily from the area because of partial or complete bronchial obstruction (Harrison's Principles of Internal Medicine, 12th ed, p1068)

**Lung Diseases**

Disorders of the lung, general or unspecified.

**Lung Diseases, Fungal**

Disorders of the lung, caused by fungi

**Lung Diseases, Interstitial**

A heterogeneous group of noninfectious, nonmalignant disorders of the lower respiratory tract, affecting primarily the alveolar wall structures but also often involving the small airways and blood vessels of the lung parenchyma. "Interstitial" refers to the fact that the interstitium of the alveolar walls is thickened, usually by fibrosis. This group of diseases is usually inflammatory. (Dorland, 27th ed; Wyngarden, Cecil Textbook of Medicine, 19th ed, p396)

**Lung Diseases, Obstructive**

Any disorder marked by persistent obstruction of bronchial air flow.

**Lung Diseases, Parasitic**

Infections of the lungs with a parasite. They are caused most commonly by nematodes (roundworms).

**Lung Volume Reduction Surgery (LVRS)**

The surgery that is performed on patients with emphysema to reduce that amount of lung in the chest cavity.

**Lymph**

A transparent, slightly yellow liquid of alkaline reaction, found in lymphatic vessels and derived from the tissue fluids. Lymph is collected from all parts of the body and returned to the blood via the lymphatic system. (Dorland, 28th ed)

**Lymph Nodes**

Any of the accumulations of lymphoid tissue organized as definite lymphoid organs, varying from one to 25 mm in diameter, situated along the course of lymphatic vessels. The lymph nodes are the main source of lymphocytes of the peripheral blood and, as part of the reticuloendothelial system, serve as a defense mechanism by removing noxious agents, such as bacteria and toxins, and probably play a role in antibody production. (Dorland, 28th ed)

**Lymphangiomyoma**

A tumor-like condition characterized by smooth muscle and endothelium proliferation of lymphatic vessels and lymph nodes in the mediastinum and retroperitoneum, also in the lung. It may be manifested by chylous pleural effusion and ascites.

**Lymphangiomyomatosis**

A progressive disorder of women of child-bearing age, marked by nodular and diffuse interstitial proliferation of smooth muscle in the lungs, lymph nodes, and thoracic duct. (Dorland, 27th ed)

**Lymphatic System**

The lymphatic vessels and lymphoid tissue, considered collectively. (Dorland, 28th ed)

**Lymphocyte Subsets**

A classification of lymphocytes based on structurally or functionally different populations of cells.

**Lymphocytes**

White blood cells formed in the body's lymphoid tissue. The nucleus is round or ovoid with coarse, irregularly clumped chromatin while the cytoplasm is typically pale blue with azurophilic (if any) granules. Most lymphocytes can be classified as either T or B (with subpopulations of each); those with characteristics of neither major class are called null cells.

**Pleura**

The thin serous membrane enveloping the lungs and lining the thoracic (chest) cavity.

**Pleural Cavity**

The chest cavity. It houses the heart and lungs.

**Pleural Diseases**

Disorders of the pleural space, general or unspecified.

**Pleural Effusion**

Presence of fluid in the pleural cavity resulting from excessive transudation or exudation from the pleural surfaces. It is a sign of disease and not a diagnosis in itself.

**Pleural Effusion, Malignant**

Fluid built up in the pleural space (space around the lungs) due to cancer. More common cancers that cause this are breast and lung.

**Pleural Membranes**

The lung is surrounded by a membrane that has two closely opposed layers known as the pleura. The visceral pleura (inside layer) lines the lungs. The parietal pleura (outside layer) lines the chest cavity. The two layers are separated by a thin film of lubricating fluid that helps the smooth sliding of one surface over another during breathing movements.

**Pleural Neoplasms**

Neoplasms of the thin serous membrane that envelopes the lungs and lines the thoracic cavity. Pleural neoplasms are exceedingly rare and are usually not diagnosed until they are advanced because in the early stages they produce no symptoms.

**Pleural Procedure**

A medical or surgical procedure involving pleura (lining of the lung).

**Pleural Space**

The tiny fluid-filled "space" between the visceral and parietal pleura; if air should enter this normally non-communicating space, a pneumothorax will result

**Pleurisy**

Inflammation of the pleura, with exudation into its cavity and upon its surface. It may occur as either an acute or chronic process. (Dorland, 28th ed)

**Pleuropneumonia**

Pleurisy complicated with pneumonia. (Dorland, 27th ed)

**Pneumoconiosis**

Condition characterized by permanent deposition of substantial amounts of particulate matter in the lungs, usually of occupational or environmental origin, and by the tissue reaction to its presence.

**Pneumonia**

Inflammation of the lungs with consolidation and exudation

**Pneumonia, Aspiration**

A type of pneumonia resulting from the aspiration of food, liquid, or gastric contents into the upper respiratory tract.

**Pneumonia, Bacterial**

Pneumonia caused by various species of bacteria. Bacterial pneumonia commonly results from bronchogenic spread of infection following microaspiration of secretions. The largest category of this disease arises from community-acquired pneumonias.

**Pneumonia, Lipid**

Pneumonia due to aspiration or inhalation of various oily or fatty substances.

**Pneumonia, Mycoplasma**

Interstitial pneumonia caused by extensive infection of the lungs and bronchi, particularly the lower lobes of the lungs, by mycoplasma pneumoniae.

**Pneumonia, Pneumococcal**

A febrile disease caused by streptococcus pneumoniae. This condition is characterized by inflammation of one or more lobes of the lungs, and symptoms include chills, fever, rapid breathing, and cough.

**Pulmonary Alveolar Proteinosis**

A chronic lung disease characterized by dyspnea, productive cough, chest pain, weakness, weight loss, and hemoptysis, and by the filling of the distal alveoli with a bland, eosinophilic, proteinaceous material that prevents ventilation of affected areas. (Dorland, 28th ed)

**Pulmonary Edema**

Abnormal, diffuse, extravascular accumulation of fluid in the pulmonary tissues and air spaces due to changes in hydrostatic forces in the capillaries or to increased capillary permeability. (Dorland, 28th ed)

**Pulmonary Embolism**

Embolism in the pulmonary artery or one of its branches.

**Pulmonary Emphysema**

Condition of the lungs characterized by increase beyond normal in the size of air spaces distal to the terminal bronchioles, either from dilatation of the alveoli or from destruction of their walls.

**Pulmonary Eosinophilia**

A disease characterized by pulmonary infiltrations of eosinophils and blood eosinophilia.

**Pulmonary Fibrosis**

Chronic inflammation and progressive fibrosis of the pulmonary alveolar walls, with steadily progressive dyspnea, resulting finally in death from oxygen lack or right heart failure.

**Pulmonary Function Tests (PFT)**

A set of tests that studies lung volumes and capacities to evaluate the mechanical properties of the lung. The test measures:

- TCL (Total Lung Capacity -is the volume of air in the lungs after a maximal inspiration)
- RV (Residual Volume -is the volume of air remaining in the lungs after a maximum expiration)
- VT (Tidal Volume -is the volume of air that enters the lungs during inspiration and leaves the lungs during expiration)
- FRC (Functional Residual Capacity -is the volume of air that remains in the lungs at the end of a normal expiration)
- VC (Vital Capacity -is the maximum volume of air that can be exhaled from the lungs after a maximum inspiration)
- FEF (Forced Expiratory Flow)
- FVC (Forced Vital Capacity -after taking in as deep a breath as possible, the air is breathed out as forcibly as possible until no more can be breathed out)
- FEV1 (Forced Expiratory Volume in 1 second -is the maximum amount of air that can be breathed out in the first second during a forced expiration)
- DLCa (Lung Diffusion Capacity -provides an estimate of how well a gas is able to move from your lungs into your blood)

### **Respiratory Distress Syndrome**

A condition of the newborn marked by dyspnea with cyanosis, heralded by such prodromal signs as dilatation of the alae nasi, expiratory grunt, and retraction of the suprasternal notch or costal margins, most frequently occurring in premature infants, children of diabetic mothers, and infants delivered by cesarean section, and sometimes with no apparent predisposing cause. (From Dorland, 27th ed)

### **Respiratory Tract Fistula**

An abnormal passage communicating between any parts of the respiratory tract or between any part of the respiratory system and other organs.

### **Respiratory Tract Infections**

Infections of the respiratory tract, general or unspecified.

### **Sleep Apnea Syndromes**

Disorders involving apneic episodes during sleep. They may be due to cessation of diaphragmatic movement, obstruction of upper airway air flow, or a combination of these, and may be associated with hypersomnolence, insomnia, or obesity.

### **Thoracoscope**

The thoracoscope is an instrument used to examine the pleural cavity through an opening made between the ribs.

### **Thoracoscopy**

Thoracoscopy is the insertion of small scope through the chest wall to enable a physician to see the inside of the chest cavity and the lungs. The procedure is done to biopsy abnormal lung tissue, determine the cause of fluid in the chest cavity, introduce therapeutic agents directly into the pleural space, and treat air bubbles on the lung.

### **Ventilation Perfusion Scan (V/Q)**

A Ventilation Perfusion Scan (V/Q) is a nuclear medicine test that looks at blood flow and air distribution in the lungs. V/Q scans are done before surgery that involves resection of lung to determine where the areas are that receive both air (ventilation) and blood (perfusion). The surgeon can then determine how much contribution to overall lung function those areas provide.

### **Ventilators**

These machines substitute for, or assist normal breathing. They include NIPPV (Non-Invasive Positive Pressure Ventilation) and IPPV (Invasive Positive Pressure Ventilation). Each ventilator can be programmed to assist the patient who breathes on their own with extra pressure support to the airway, add extra breaths to the patient's own spontaneous respiratory rate, and totally provide all respiratory support for the patient. They can also provide high amount of oxygen support.