



## Glossary of Common Medical Terms Used in Home Care

These definitions, although written to be accurate, are simplified and maybe incomplete. For a more complete (and complicated) definition, refer to an acceptable medical dictionary (e.g. Dorland's, Stedman's). Abbreviations used may include aka, - "also known as, e.g. - "for example," and i.e. - "that is." Words that appear in italics within the definition are also defined elsewhere within the glossary.

**Accessory Muscles** – Muscles within the chest, shoulders, and abdomen can act as a "backup system" to the diaphragm when it is not able to maintain adequate breathing. Patients using their accessory muscles are often noted to sit with their arms resting on the table or with their hands on their knees in order to better use their muscles for breathing.

**Actuate** – Pressing down on the top of an inhaler canister to trigger the "puff" or "spray" of medication.

**Acute** – Having a short and relatively severe course.

**Acute Respiratory Failure** – A short period when the patient is unable to maintain adequate oxygen and/or carbon dioxide levels in the blood due to inadequate ventilation.

**Aerobic** – A process which requires the use of oxygen is aerobic. Processes that don't require oxygen are anaerobic.

**Aerosol** – Very small droplets suspended in air. A liquid medication is typically aerosolized so that it can be inhaled into the lungs.

**Air Trapping/ Hyperinflation** – Patients with diseases which make it difficult to get air out of the lungs (e.g. COPD, Asthma) begin to trap excess air in the chest. Air is trapped in the lungs as airways are narrowed by swelling, excess mucous, airway muscle spasms, and destruction of the lungs themselves. This is analogous to a balloon that is over-inflated.

**Airflow** – Airflow is the movement of air in (inspiratory flows) or out (expiratory flows) of the airways. It is usually measured on liters per minute (l/m) or liters per second (l/s).

**Airways** – Airways are the tubes that provide a path for air movement from the atmosphere to the alveoli (air sacs) in the lungs.

**Allergens** – A substance that causes an allergic reaction.

**Alveoli** – Microscopic air sacs in the lungs that are responsible for getting oxygen into, and carbon dioxide out of, the bloodstream.

**Amyotrophic Lateral Sclerosis (ALS)** – Also known as motor neuron disease or “Lou Gehrig’s Disease,” ALS is characterized by progressive loss of muscle use and eventually results in respiratory failure and death.

**Antibiotics** – Medications aimed at suppressing or eliminating certain harmful microorganisms (e.g. bacteria, fungi, viruses) in the body.

**Anticholinergic** – A group of drugs (e.g. ipratropium, atropine) that work by blocking the action of a chemical (i.e. acetylcholine) that causes the airway to constrict (i.e. get smaller or narrower). Anticholinergics also reduce the amount of mucus secreted into the airways.

**Anti-Inflammatory** – An agent that blocks or suppresses inflammation (swelling).

**Apnea** – No airflow in or out of the lungs.

**Artery or Arterial** – The blood vessels that carry blood away from the heart.

**Arterial Blood Gas (ABG)** – ABG’s are obtained by taking a sample of blood from the artery and measuring the blood level of oxygen, carbon dioxide, and pH in it. Values may be calculated for other measures such as bicarbonate ion ( $\text{HCO}_3$ ),  $\text{SaO}_2$ , and base excess. Arterial blood gases provide a good measure for how effectively the lungs are functioning in getting oxygen into the bloodstream and removing carbon dioxide ( $\text{CO}_2$ ) from the blood.

**Asthma** – Asthma is a condition characterized by periods of decreased airflow through the airways. This is due to a blockage of the airways from swelling, spasm of the muscle around the airway, and increased secretions in the airways.

**Atrium** – The upper chamber of the heart. There is a left and a right atrium. Plural is atria.

**Backup Rate** – A setting on the ventilator, the backup rate will give the patient a breath if they experience a period of no breathing (i.e. central apnea).

**Bi-level Positive Airway Pressure** – By connecting a bi-level device to a nasal mask, bi-level PAP gives the patient two different pressures- one during inspiration (i.e. IPAP) and a lower pressure during exhalation (i.e. EPAP).

**Before and After Bronchodilator (aka, Pre and Post Bronchodilator)** – This pulmonary function test is done by performing a forced vital maneuver to establish a baseline (a test to compare to), giving a bronchodilator (such as a hand-held nebulizer treatment with albuterol), and repeating the forced vital maneuver to measure the improvement. An improvement of 12-15% in the FEV1 or FVC is typically a significant change and may be indicative of a reversible (e.g. asthmatic) component to the disease.

**Beta2 Agonist (aka, Beta agonist, Beta-adrenergic agonist, Sympathomimetic)** – A group of drugs (e.g. albuterol, metaproterenol, isoetharine, salmeterol) that cause the airways to open by relaxing the smooth muscle that surrounds the airway. They have a second benefit of increasing the clearance of mucus from the airway.

**Beta-Receptor (aka Beta-Adrenergic Receptors)** – Located mainly in the heart (Beta1 receptors) and the lungs (Beta2 receptors), when Beta2 sites are stimulated, the smooth muscle that surrounds the airway relaxes and the airway becomes more open

(bronchodilation). Other effects include improving the clearance of mucus from the chest (desirable effect) and muscle tremor (undesirable side effect).

**Bi-level Positive Airway Pressure (aka Bi-level PAP or BIPAP)** – Bi-level Positive Airway Pressure is similar to CPAP except that two different pressures are applied to the airway. During inspiration a higher pressure is used (called inspiratory positive airway pressure or IPAP) and during exhalation a lower pressure is applied (called expiratory positive airway pressure or EPAP).

**Bronchioles (aka Bronchiolus)** – One of the smaller divisions of the bronchiole tree, the system of the airways that carry air to the alveoli (air sacs) in the lungs. When the airway is 1mm or less in diameter, it is referred to as bronchiole. When it is larger and contains supportive cartilage, it is called bronchus (plural – bronchi).

**Bronchoconstriction** – A reduction in the diameter of the bronchiole (airway), usually as a result of contraction of the smooth muscle that surrounds the airways.

**Bronchodilation** – An increase in the inside diameter of the bronchiole (airway lumen), usually as the result of relaxation of the smooth muscle that surrounds the airways.

**Bronchodilator** – A drug that works to increase the diameter of the bronchiole, usually as a result of relaxation of the smooth muscle that surrounds the airways.

**Bronchospasm** – A sudden reduction in the diameter of the bronchiole, usually as a result of contraction of the smooth muscle that surrounds the airways.

**Carbon Dioxide (CO<sub>2</sub>)** – Carbon dioxide is a waste gas that is produced by our bodies as energy is burned. It is normally carried to the lungs by the blood where it is exhaled.

**Cardiomyopathy** – Disease of the heart muscle (i.e. myocardium).

**Central Apnea** – No airflow in or out of the lungs for a period of time (usually 10-15 seconds or longer) when the patient makes no attempt to breathe.

**Chest Wall Disease** – Chest wall disease include conditions which may restrict movement of the thoracic cavity (ribs and spine). Conditions such as kyphoscoliosis (kyphosis – abnormal front to back curvature, scoliosis – abnormal sideways curvature of the spine) restrict the volume of the lungs by reducing the normal movement of the chest wall.

**Cheyne-Stokes Respirations** – An abnormal breathing pattern characterized by gradually deeper breaths, followed by gradually shallower breathing with periods of central apnea.

**Chronic** – Lasting for, or occurring over, a longer period of time.

**Chronic Bronchitis** – A chronic condition characterized by swollen airways, excess production of mucus, and constriction of the muscle that surrounds the airway. It is generally caused by smoking or exposure to other airway irritants and is defined by a productive cough on most days for at least 3 months for 2 successive years.

**Chronic Obstructive Pulmonary Disease (COPD)** – COPD is a diagnosis that includes conditions such as emphysema, chronic bronchitis, and asthmatic bronchitis that produce chronic reduction of the airflow out of the lungs. Because these conditions often coexist to some degree, it is often easier to group patients under COPD rather

than saying “emphysema with some chronic bronchitis” or “chronic bronchitis with an asthmatic component.”

**Chronic Respiratory Failure** – A constant state of the patient being unable to maintain adequate ventilation resulting in low oxygen level and/or high carbon dioxide level.

**Cilia** – Microscopic hair-like projections that line the airways. These cilia beat in a rhythmic fashion to push mucus (and trapped, inhaled particles) up the airway, where it is swallowed.

**Clinical Practice Guidelines** – Guidelines for the management of a disease based upon the best available current data and expert opinion.

**Combination Therapy** – The use of medications together for an additive effect. In COPD, a beta2 agonist (e.g. albuterol) is used with an anticholinergic (e.g. ipratropium). The two medications provide a better response than either medication used alone.

**Compliance (aka Adherence)** – Using a medication or treatment exactly as prescribed by the doctor. For example, a patient taking a medication exactly as ordered by the doctor (i.e. correct dosage and frequency) is compliant. A patient not taking the medication as ordered is non-compliant.

**Congenital** – A condition that exists from birth.

**Congestive Heart Failure (aka Heart Failure)** – Heart failure occurs when the heart is unable to pump enough blood to meet the body’s needs. It is not a disease, but rather the result of disease on the heart muscle. Because many patients with heart failure have excess fluid back up (i.e. congestion) in the lungs and other body systems, the condition was once called Congestive Heart Failure (CHF).

**Convention/ Consensus Conference** – A gathering of experts to determine the terms and standards surrounding a particular area of care.

**Continuous Positive Airway Pressure (CPAP)** – A continuous pressure applied to the airway through a nasal mask. Typically used to prevent collapse of the upper airway that occurs in obstructive sleep apnea.

**Coronary Heart Disease** – Heart disease secondary to poor blood flow to the heart muscle, usually from blockage of the coronary arteries.

**Corticosteroids (aka Glucocorticoids, Steroids)** – Medication group, includes prednisone, dexamethasone, and triamcinolone, which is used to reduce inflammation. Used in a variety of illnesses including lung disease (to reduce airway swelling) and arthritis (to reduce joint swelling).

**CPT Code Book** – The physician’s Current Procedural Terminology or CPT Code Book is a listing of standardized procedures and codes used by physicians and hospitals for billing procedures such as office visits, surgeries, diagnostic testing, and other medical services. This book is updated periodically to reflect necessary changes.

**Cross-Contamination** – Cross contamination is the spread of germs or disease from one individual to another. This could be from patient to health care provider, from provider to patient, patient to patient, etc. Use of universal precautions (i.e., treating every contact as potentially infectious) is often instituted to prevent cross contamination.

**Cyanosis** – A bluish discoloration of the skin as a result of a low oxygen level. This typically is first seen in the nail beds and around the mouth.

**Cystic Fibrosis** – A genetic condition which results in excessive production of thick mucus in the airways.

**Deposition** – The act of medication droplets (from an *aerosol*) landing on the surface of the airway.

**Desaturate/Desaturation** – An abnormal drop in blood oxygen levels. This is typically defined by a drop of at least 4-5% in oxygen saturation.

**Dexterity** – The ability to make fine, precise movement with the hands such as gripping and maneuvering small objects.

**Diaphragm** – The diaphragm is the dome shaped muscle under the lungs. When it contracts it causes the size of the chest cavity to expand, drawing air into the lungs (inhalation). When it relaxes it returns to its natural dome shape and exhalation occurs.

**Dilate** – Making an opening larger.

**Dosage/Dose** – The amount of medication given to a patient. The dosage should include how much they take (e.g., 1 tablet, 2 puffs), how often they take it (e.g., *QID*), and how long they should continue to take it (e.g., times seven days).

**Dyspnea** – A sensation experienced by the patient of having difficulty breathing.

**Echocardiogram** – Test that creates a moving view of the heart and heart function by the use of sound waves. Estimated of the heart's pumping ability and internal pressures are created using computerized models.

**Elasticity** – The stretchiness of the air sacs in the lungs. Normally the alveoli are like balloons and try to return to their resting volume when inflated. However, with disease such as emphysema, the air sacs can lose their elastic property and become more like paper sacs.

**Electrocardiogram (ECG or EKG)** – Recording of the electrical activity of the heart.

**Electroencephalogram (EEG)** – Recording of the electrical activity of the brain. EEG is used to determine which stage of sleep the patient is in during a sleep study (polysomnography).

**Electromyogram (EMG)** – Recording of the electrical activity of a muscle. In polysomnography studies, EMG of the jaw, legs, and eyes may be recorded.

**Electrooculogram (EOG)** – Recording of the movement of the eye muscles. This is used to help determine when rapid eye movements occur during sleep.

**End-Tidal CO<sub>2</sub> (ETCO<sub>2</sub>)** – The amount of carbon dioxide in exhaled air. From this measurement, it is possible to estimate the amount of carbon dioxide in arterial blood.

**Esophageal pH** – The measurement of the pH in the tube leading to the stomach. If this measurement shows drops, it indicates that stomach acid is moving up into the esophagus (aka, gastro-esophageal reflux).

**Exacerbation** – A sudden worsening of the patient’s condition that requires additional treatment. In lung disease, the two most common causes of exacerbation are infection and heart failure.

**Exhale or Exhalation** –The part of the breathing cycle when air is flowing out of the lungs.

**Expiratory Positive Airway Pressure (EPAP)** – During NPPV, the pressure applied to the airways while the patient is exhaling.

**Flow-Volume Loop** – A graphical representation of a forced maximum exhalation (FVC maneuver) followed by a forced maximum inhalation. Flow is represented on the vertical (y) axis and volume is represented on the horizontal (x) axis. The shape of the flow-volume loop can be used as a good indicator of lung impairment. (See section on interpretation.)

**Fluid Retention** – When the patient begins to accumulate extra fluid in the body, this fluid of ten gathers in the feet, legs, and body organs including the abdominal organs and the lungs. When the fluid gathers in the lungs, oxygen is less able to move into the bloodstream resulting in worsened breathing.

**Forced Expiratory Flow at 25-75 of FVC (FEF 25-75)** – A significant reduction (e.g., less than 65% predicted) in this parameter may be indicative of early small airway obstruction. Care must be exercised in using this parameter alone as several factors may cause reduction in healthy individuals.

**Forced Expiratory Volume in One Second (FEV1)** – This is a measure of the amount of air expired during the first second of the forced vital capacity maneuver. In normal individuals, 75-85% of the FVC should be exhaled in the first second.

**FEV1/FVC** – Also known as the FEV1%, this ratio of the FEV1 to FVC is the most useful indicator of airflow obstruction. If this ratio is less than 0.75, airflow obstruction is likely to exist.

**Forced Vital Capacity (FVC)** – This is a measurement of the total amount of air you can forcibly exhale (i.e., by blowing as hard as you can for as long as you can) after you have taken as deep a breath in as possible. It is typically measured in liters and a reduction in this measure may indicate a restrictive defect (i.e., a reduction in the volume of the lungs).

**Forced Vital Capacity Maneuver** – This maneuver is accomplished by having the patient take in as deep a breath as possible and then exhaling as hard as they can for as long as they can until no more air is coming out. Complete exhalation typically takes about 6 seconds in normal individuals but may take 15 seconds or longer in patients with severe obstructive disease.

**Frequency** – When pertaining to medication or treatment, it is how often the medicine or treatment should be administered. Common ways of expressing frequency are shown below:

<b>QD</b>	Every day	<b>Q2°</b>	Every 2 hours
<b>BID</b>	Twice per day	<b>Q4°</b>	Every 4 hours
<b>TID</b>	Three times each day	<b>PRN</b>	As needed
<b>QID</b>	Four times each day	<b>@ HS</b>	During hours of sleep

**Frontline Treatment of COPD, A Monograph for Primary Care Physicians** – A booklet written by eight prominent pulmonologists to guide the primary care physician in the management of patients with COPD. Among the authors is Dr. Thomas Petty, the grandfather of pulmonary rehabilitation and an outspoken proponent for the judicious use of spirometry, Oximetry, and oxygen therapy.

**Full-Face Mask** – A mask can be used to deliver NPPV, Bi-level PAP, and CPAP that covers both the nose and mouth.

**Glucocorticoids** – See “Corticosteroid”

**Goblet Cells**- Specialized cells that exist in the lining of the airways. These cells produce a part of the mucus that lines and protects the airway.

**Heart Attack (aka, Myocardial Infarction)** – Death of an area of the heart muscle due to loss of blood flow.

**Heart Failure** – See “Congestive Heart Failure”.

**Heart Values** – Structures between heart chambers or between the heart and major vessels that prevent backward movement of blood flow during heart contractions and relaxation.

**High Blood Pressure (aka Hypertension)** – Increased pressure of the blood in the arteries.

**Hemoglobin** – A compound found in red blood cells which carries most of the oxygen in our blood. A small amount of oxygen is carried in the fluid part of the blood (i.e. plasma).

**Hormone** – A chemical substance formed in one organ or part of the body and carried in the blood to another organ or part of the body where it produces a specific effect.

**Hypercapnia (aka Hypercarbia)** – A high level of carbon dioxide, also referred to as hypercarbia. Hypercapnia is a sign of hypoventilation.

**Hyperplasia** – An increase in number.

**Hypertrophy** – When the body organ or tissue becomes larger in size.

**Hyperventilate/ Hyperventilation** – Excess breathing caused by breathing too fast (tachypnea) or too deeply (hyperpnea).

**Hypoventilation** – Less than normal ventilation due to smaller sized breaths (hypopnea), slower breathing (bradypnea), or a combination of both.

**Hypopnea** – Smaller than normal sized breath.

**Infection** – Abnormal growth and reproduction of germs (i.e. virus, bacteria, fungus, parasites, etc.) in or on the body.

**Inflammation** – Swelling in an area as a natural body response to irritation. One example is when an irritant contacts our skin and the area becomes red and swollen.

**Inhale/ Inhalation** – The part of the breathing cycle when air is flowing into the lungs.

**Inspiratory Positive Airway Pressure (IPAP)** – During NPPV, the pressure applied to the airways during the period when the patient is inhaling.

**Interface** – The part of the apparatus worn by the patient to deliver CPAP, Bi-level PAP, and NPPV. The most common are the nasal mask, the full face mask, or the mouthpiece.

**Jugular Distension** – The jugular veins which run through the neck a few inches on either side of the windpipe (trachea) can appear swollen and stick out (distend) from the neck when the heart is unable to pump blood effectively.

**Kyphoscoliosis** – Kyphosis is an abnormal front to back curvature of the upper spine (e.g. hump-back) and scoliosis is an abnormal sideways curvature of the spine. These conditions can restrict the volume of the lungs by reducing the normal movement of the chest wall.

**Life- Supporting** – A device which if the patient stopped using, death would be imminent within a short time.

**Liter Flow** – A measurement of airflow (e.g. oxygen) usually measured in liters per minute (l/m).

**Lumen** – The inside diameter of a tube such as an airway.

**Lung Sounds** – Sounds heard through a stethoscope as air passes through the airways. Listening to lung sounds through a stethoscope is called “auscultation” of the lungs.

**Lungs** – The lungs are organs of gas exchange in the body. Composed of millions of tiny alveoli, they are designed to get oxygen into the bloodstream and carbon dioxide out of the blood.

**Maximum Inspiratory Pressure (MIP) aka Negative Inspiratory Force (NIF)** – A measurement of the maximum amount of negative pressure that a patient can generate during a forced inhalation.

**Mediator- Modifying Agents** – Medications designed to suppress or block the action of “chemical mediators.” These mediators cause unwanted effects such as swelling of the airway and mucus production.

**Metabolism** – Processes occurring in the body that change materials from large molecules to smaller (e.g. “burning fats, carbohydrates, or proteins to produce energy) or smaller molecules to larger (e.g. joining simple sugars together for storage). All these processes require energy and most require oxygen.

**Metabolize** – The process when food products (i.e. carbohydrates and proteins) are “burned” to energy.

**Metered Dose Inhaler (aka MDI, Inhaler, “Puffer”)** – A device for delivering a medication mist to the airway. It is comprised of a canister of medication and propellant along with a small plastic delivery system, which creates the “spray” that is inhaled by the patient.

**Microns** – A unit of measurement equal to 1/1000 of a millimeter.

**Mixed Apnea** – Periods when both obstructive and central apneas occur together.

**Morbid Obesity** – Being overweight a sufficient amount to prevent normal activity or body function, or to cause the onset of a disease condition.

**Morning Cough** – An early symptom of COPD caused when the airway expel excess mucus that collects in the upper airway during sleep.

**Mouthpiece** – An interface placed in the mouth to deliver therapy.

**Mucus** – A sticky substance that lines our airways and traps inhaled particles (e.g. pollen, dust, bacteria, and viruses) to protect the lungs. Mucus glands and goblet cells that line the airways produce it.

**Mucus Glands** – Glands that line our larger airways and secrete one part of the mucus that lines the surface of the airways.

**Muscle Tone** – The tension (i.e. “firmness”) present in resting muscles.

**Muscular Atrophy** – A disease of the muscles characterized by muscle tissue wasting.

**Muscular Dystrophy** – A group of genetically determined, painless conditions characterized by muscle wasting without nervous system involvement.

**Myasthenia Gravis** – A condition of fatigue and exhaustion of the muscles marked by progression paralysis of the muscles.

**Nasal Mask** – A mask placed over the nose to deliver pressure to the airway during CPAP, Bi-level PAP, or NPPV.

**Neuromuscular Disease** – Diseases characterized by loss of nervous system or muscular function.

**Nebulizer** – A device that takes a liquid medication and creates a fine mist (aerosol) that is inhaled by the patient into the airways. The two main types are the hand-held nebulizer that uses air flow to create the mist and the ultrasonic nebulizer, which uses sound waves.

**Nocturnal** – Happening at night.

**Noncompliant** – Refusing to follow the instructions given. For example, if a patient refuses to follow the doctor’s order to use oxygen, they are noncompliant.

**Noninvasive** – Not requiring penetration on the skin (e.g. needle stick) or penetration into the body orifice (e.g. intubation, NG tube).

**Noninvasive Positive Pressure Ventilation (NPPV)** – A therapy using a small bi-level pressure support ventilator and a noninvasive interface (usually a nasal mask) to augment the patient’ spontaneous breathing. It is used in patients with chronic respiratory failure to treat chronic or periodic hypoventilation.

**Non-Rapid Eye Movement (aka Non-REM)** – Stages of sleep when rapid eye movements are not occurring. These tend to be “shallower” stages of sleep.

**Normoxemia** – Maintaining a normal oxygen level.

**Obesity** – Overweight, usually greater than 20% over ideal body weight.

**Obesity Hypoventilation Syndrome** – Also known as “Pickwickian Syndrome” severe restriction of ventilation secondary to obesity that results in daytime hypoventilation and impairment of gas exchange (i.e. reduced oxygen level and/or increased carbon dioxide levels).

**Obstruction or Obstructive Defect** – When there is impairment in how quickly the air is able to move out of the lungs, this is an obstructive defect. It is indicative of obstructive diseases such as asthma, COPD, and bronchiectasis. A reduction in the FEV1/ FVC ratio is the best indicator of an obstructive defect.

**Obstructive Sleep Apnea (OSA)** – A condition characterized by repetitive episodes when the upper airway collapses during sleep, resulting in no airflow to the lungs despite the fact that the patient has effort (i.e. diaphragm movement) to breathe.

**Optimal Response** – The best reasonable outcome as the result of some intervention.

**Orthopnea - Increased** shortness of breath when lying down compared to standing or sitting.

**Overlap Syndrome** – A condition in which COPD and obstructive sleep apnea occur together.

**Oximetry/ Oximetry Recording** – This is a noninvasive measure of the oxygen saturation of the hemoglobin. That is, 97% of the hemoglobin in the blood is completely saturated with oxygen the Oximetry reading (i.e. SPO2) would be 97%. Oximetry is a useful tool because it allows for continuous recording of the blood oxygen level during periods of sleep and activity.

**Oxygen (O2)** – An element required by the body to metabolize or “burn” energy. Air that we inhale contains 21% oxygen.

**PACO2 or PCO2** – The measurement of how much carbon dioxide is in the arterial blood when taken during an arterial blood gas measurement. P stands for partial pressure and A stands for arterial. The A is sometimes omitted.

**PAO2 or PO2** – The measurement of how much oxygen is in the arterial blood when taken during an arterial blood gas measurement.

**Pack Years** – Pack years is calculated by multiplying the number of years smoked by the average number of packs smoked per day. For example, a patient that has smoked an average of 2 packs per day for 15 years would have a 30-pack year smoking history. Patients with a 20-pack year or greater smoking history should have spirometry performed.

**Paroxysmal Nocturnal Dyspnea** – Sudden awakening during the night due to shortness of breath.

**Percent Predicted** – This percentage is calculated by dividing the measured amount by the predicted amount and multiplying by 100. For example, if the FVC for a young man is predicted at 5 liters and his measured value is 4 liters, his percent predicted would be:

- 4 liters (measured value) divided by 5 liters (predicted value) x 100 = 80%predicted

In other words, his FVC is 80% of what it is predicted to be, based on age, sex, height and race.

**Perfusion** – Blood flow through the vessels of a tissue or organ.

**Ph** – The acidity or alkalinity of a substance. It is measured on a scale of 0-14 with a measurement of less than 7 being acid and greater than 7 being alkaline. Water has a ph of 7 and normal arterial blood has a ph of 7.4 which is slightly alkaline.

**Pleural Effusion** – Accumulation of fluid in the chest cavity.

**Polysomnography (PSG)** – Testing performed while the patient is asleep that includes monitoring EKG, chest movement, air movement out of the nose and mouth, SPO2, EEG, EMG, and other measurements.

**Post-Polio Syndrome** – A syndrome in which patients that previously had polio, have symptoms of respiratory failure later in life.

**Predicted** – The normal values expected on spirometry measurements based upon age, height, sex, and race.

**Primary Care Physicians** – Physicians including general practitioners, family practitioners, and general internists responsible for the vast majority of general healthcare.

**PRN** – Using medication “as needed” based upon the patient or caregiver’s judgment.

**Propellant** – A compound that is mixed with the medication in an inhaler canister. When shaken, the propellant creates pressure inside the canister so when the canister is pressed the medication sprays out.

**Pulmonary** – Relating to the lungs, to the arteries that go to the lungs, or to the opening leading from the right ventricle into the pulmonary artery.

**Pulmonary Congestion (aka Pulmonary Edema)** – An abnormal accumulation of fluid in the lungs.

**Pulmonary Fibrosis** – A condition which occurs when the lungs lose their normally elasticity and become stiff which restricts their volume and may impede the movement of oxygen into the blood. This may occur secondary to other diseases (e.g. rheumatoid arthritis), exposure to damaging agents (e.g. certain drugs or inhalers) or for unknown reasons (i.e. idiopathic pulmonary fibrosis).

**Pulmonary Function Test (PFT)** – This is a generic term used for several different measurements of lung function. It may include the measurement of basic spirometry, maximum voluntary ventilation (MVV), lung volumes (e.g. nitrogen washout, helium dilution), body plethysmography, slow vital capacity (SVC), diffusion studies (DLCO), and even ABG’s. Most of these measurements are typically done in a hospital-based PFT lab.

**Pulmonologist** – A physician which has received specialized training in the field of pulmonary medicine. This is typically accomplished by completing residency training in internal medicine and fellowship training in pulmonary medicine.

**Pursed- Lipped Breathing** – A technique in which the patient exhales through pursed lips to create back pressure in the airways, preventing early closure of the airways.

**QID** – Four times a day.

**Rapid Eye Movement (aka REM)** – The deepest stage of sleep, so called because when it occurs the eyes begin to move back and forth rapidly, which is measured during

polysomnography. Dreaming also occurs during REM sleep. This is the period during which many types of sleep disordered breathing tend to be at their most severe.

**Receptor Sites** – A part of a sensory nerve that responds to some type of stimulus (e.g. chemical) by producing a response.

**Repeatability** – An indicator of the quality of testing by measuring how close the results of one test attempt are to another. If test quality is good, the results of the best two tests should be very close to each other.

**Respiratory Care Practitioners** – Respiratory Care Practitioners are clinicians with training specific to the delivery of respiratory care. This includes Certified Respiratory Therapy Technicians (CRTT's which typically have one year of training) and Registered Respiratory Therapists (RRT's typically have 2-4 years of training). Additional credentials include Certified and Registered Pulmonary Function Technologists (CPFT and RPFT) which have successfully completed additional testing demonstrating expertise specific to pulmonary function testing.

**Respiratory Failure** – Failure of the lungs to provide adequate gas exchange (i.e. getting oxygen in and carbon dioxide out) for the body's needs.

**Respiratory Defect** – A decrease in the total lung capacity is caused by restrictive defect. Restrictive defects may be caused by obesity, chest wall disease, intrinsic lung disease (e.g., pulmonary fibrosis), and neuromuscular disease. A reduction in FVC during basic spirometry may be indicative of a restrictive defect. More complete lung volume testing may be needed to definitively diagnose a restrictive defect.

**Reversibility** – The ability to return to a more normal level. For example, if airflow obstruction can be returned toward normal, it is said to be reversible.

**Saturation (SpO<sub>2</sub>/SaO<sub>2</sub>)** – A measurement of how much oxygen the hemoglobin is holding 97% of the oxygen it is capable of holding, it is 97% saturated. SpO<sub>2</sub> is an abbreviation used when saturation is measured with a pulse Oximeter and SaO<sub>2</sub> is the abbreviation used when measured by an arterial blood gas (ABG).

**Secondary** – When one condition occurs as a result of another condition, it is said to occur secondary to that condition. For example, a black eye occurs secondary to a punch in the eye.

**Sequelae of Tuberculosis** – The aftermath of an active tuberculosis infection which may include scarring of the lungs and deformation of the chest cavity.

**Severe Obesity** – Obesity is typically defined as being more than 20% over ideal body weight. Morbid obesity is being more than 100 pounds overweight or obesity significant enough to cause disease. Obesity can cause restriction of chest wall movement by pulling down on the rib cage and restriction of movement in the diaphragm by abdominal contents. Severe obesity may even result in chronic hypoventilation (i.e., under ventilation), a condition referred to as Obesity Hypoventilation Syndrome.

**Shortness of Breath (aka, Dyspnea)** – The perception of not being able to comfortably get enough air in and out of the lungs.

**Signs** – Signs are abnormal physical findings identified by the clinician as indicators of disease. Signs can include items such as *cyanosis* (a bluish discoloration of the skin), increased work of breathing, or *digital clubbing* (bulbar enlargement of the finger tips).

**Skeletal Muscles** – Muscles that are used for movement. They are voluntary, that is they are controlled by a conscious effort.

**Sleep Disordered Breathing** – A generic term used to describe abnormal breathing during sleep. This may include obstructive apneas, mixed apneas, central apneas, cheyne-strokes respirations, hypoventilation, etc.

**Sleep Study** – A modified polysomnography test using fewer channels, typically 4-8 channels (e.g., EKG Oximetry, airflow, respiratory effort, etc.) are used. Brain activity (i.e., EEG) is not measured in a sleep study.

**Small Airways (aka, bronchioles)** – Airways generally less than 1 mm in diameter, and having no cartilage in its wall, but relatively abundant in *smooth muscles* and *elastic fibers*.

**Smooth Muscle** – Muscle that surrounds the airways and other body organs. This muscle is involuntary – that is, it is not controlled by a voluntary decision to “move” it, such as is true of the voluntary skeletal muscles (e.g., biceps, triceps). Instead, the muscle’s *tone* (level of contraction) is controlled by the level of certain chemicals (e.g., acetylcholine) that occur in the body.

**Spine** – The vertebral column.

**Spirometer** – A device used to measure basic lung function by quantifying the volume and flow rate of air out of the lungs during basic spirometry testing. This device should be available to all physicians involved in the treatment of patients with lung disease.

**Spirometry Testing** – Basic spirometry is the term typically used to denote the measurement of basic lung function (e.g., volume and airflow) by the use of a Spirometer.

**Sputum** – Mucus that has been expelled (e.g., coughed) out of the airways.

**Stable State** – When the patient is in a stable and well-managed condition. That is, they are not experiencing an acute problem or exacerbation. ABG’s must be done in the “stable state” to use them for qualification for certain home medical equipment (e.g., oxygen).

**Stroke** – Loss of brain function secondary to a broken or blocked blood vessel in the brain.

**Suboptimal Response** – A response less than what was desired. For example, an asthma patient that continues to exhibit symptoms (e.g., wheezing) after being started on bronchodilators is said to have exhibited a suboptimal response.

**Supine** – Body position lying down, face up.

**Supplemental Oxygen** – The use of oxygen in addition to oxygen being breathed from room air.

**Swan-Ganz Catheter** – A thin, flexible, hollow tube placed into the heart and pulmonary artery to measure pressures in the heart and pulmonary vessels as well as the pumping action of the heart (i.e., cardiac output).

**Symptoms** – Abnormal physical findings identified by the patient as possible indicators of disease. This may include items such as cough, shortness of breath, or weakness.

**Sympathomimetic** – See “Beta Adrenergic”

**Theophylline** – Medication, part of a group called methylxanthines, which causes dilation of the bronchiole tubes. It also strengthens the contraction of the diaphragm and acts as a respiratory stimulant.

**Thoracoplasty** – Surgical removal of a rib or ribs.

**Tidal Volume** – The volume of air inhaled during a normal breath. It is normally about 500 cc’s (i.e., 2 cups).

**Transient** – Occurring occasionally, not all the time.

**Transient Ischemic Attack (aka, TIA)** – A sudden loss of brain function due to a short period of inadequate blood flow to the brain. There is generally a full recovery in less than 24 hours.

**Ultrasonic Nebulizer (aka USN)** – See “nebulizer”

**Upper Airway** – The portion of the respiratory tract that extends from the nostrils or mouth to and including the larynx (voice box).

**Upper Airway Resistance Syndrome** – In some people the upper airway may partially collapse resulting in the patient having to work much harder to get a breath into the lungs. Although they don’t have a complete obstruction, the increased effort results in the patient having multiple arousals from sleep and a poor quality of sleep.

**Ventilate/Ventilation** – The act of moving air in (inhalation) and out (exhalation) of the lungs.

**Ventilation/Perfusion (aka V/Q) Mismatch** – Alveoli that is not receiving normal blood flow, or alveoli that is receiving normal blood flow that is not being properly ventilated.

**Ventilator** – A device which performs a part of, or all of, the patient’s breathing for them.

**Ventricles** – The lower chambers of the heart. The right ventricle pumps blood through the lungs and the left ventricle pumps blood throughout the rest of the body.

**Volume** – The measurement of 3-dimensional size is referred to as volume. In spirometry, lung volume is typically measured in liters, one liter is equal to about a quart.

**Wheeze** – A musical (e.g., whistling) *lung sound* heard as air is inhaled or exhaled. Wheezing can sometimes be heard without using a stethoscope, but often requires listening to the lungs with a stethoscope.