



## SCAA GLOSSARY

### A

**aed** - see: Automated External Defibrillator

**ablation catheter** - the therapeutic destruction of a small part of heart muscle shown at an electrophysiologic study to be responsible for an arrhythmia.

**amiodarone (cordarone)** - an antiarrhythmic agent (class III) widely used for acute (intravenous) and chronic (tablets) treatment of both ventricular and supraventricular arrhythmias. Unlike antiarrhythmic agents with local anesthetic effects (Class I agents), it has little propensity to produce rhythm disturbances (see proarrhythmia).

**antiarrhythmic agents** - Medications for the prevention or termination of arrhythmias. They are categorized into four groups according to their presumptive mechanism of action:

**Type I** - predominantly inhibit sodium ion channels and act as local anesthetics. Class I drugs are effective agents, but may depress heart performance and induce arrhythmias under special circumstances (proarrhythmia)

**Type II** - is known as beta receptor blockers (beta adrenergic receptor blockers). Adrenalin (= epineprine) acts *partly* through these receptors. These drugs may reduce mortality in patients recovering from a heart attack or suffering from heart failure.

**Type III** - inhibits potassium ion channels and prolongs recovery after electric activation of cardiac cells. Currently the drugs of choice for the prevention of serious (ventricular) arrhythmias; also useful to prevent or terminate supraventricular arrhythmias

**Type IV** - inhibits calcium channels, which influence impulse conduction at the level of the AV node. Because these drugs relax (widen) small blood vessels, they are useful for the treatment of high blood pressure

**angina** – chest discomfort, usually denotes angina pectoris (chest pain that often radiates to the arms, particularly the left)

**angioplasty** - reconstitution or recanalization of a blood vessel; may involve balloon dilation or placement of a stent

**aorta** – the main artery that carries blood away from the heart

**aortic valve** – a cardiac membrane that controls the flow of blood out of the heart and into the aorta

**artery** – vessel through which blood passes away from the heart to the various parts of the body

**arrhythmia** – irregular or rapid heartbeat

**arrhythmogenic right ventricular dysplasia (ARVD)** - A rare condition that produces ventricular tachycardia. In this disease ventricular muscle is replaced by fatty and fibrous tissue for unknown reasons. It is emerging as a cause of sudden cardiac death (SCD) in young otherwise healthy adults.

**atherosclerosis** – a build-up of cholesterol or other fatty deposits called plaque that can occur on the inner walls of blood vessels and arteries, which in advanced stages causes restriction or blockage of blood flow to the heart or brain

**atrial fibrillation** – an irregular heartbeat that causes a fluttering sensation of the heart

**atrial flutter** - A supraventricular tachycardia with a characteristic electrocardiographic appearance. It frequently coexists with atrial fibrillation and is usually associated with structural heart disease.

**atrial tachycardia** -- A rapid rhythm driven by pacemaker activity in atrial sites other than the SA node (the natural pacemaker).

**atrioventricular (AV) node** -- A collection of cells that establish an electrical connection between the otherwise electrically isolated atria and ventricles. May act as a secondary pacemaker

**atrioventricular nodal reentrant tachycardia (AVRT)** - A supraventricular tachycardia caused by dual conduction pathways within the AV node which have different speeds of transmission.

**atrium** – (plural of atria) one of a pair of smaller cavities in the heart from which blood passes to the ventricles

**automated external defibrillator (AED)** -- a portable electronic device that automatically detects irregular heart rhythms and, if a problem is present, will deliver an electric shock to the heart, allowing it to re-establish a normal rhythm

## B

**bradycardia** – slowness of the heartbeat, as evidenced by slowing of the pulse rate to less than 50 beats per minute in an adult

**Brugada syndrome** -- An inherited electrical disease of the heart.

**bundle branch block** – a delay in the conduction of the electrical impulse of the heart to the ventricle

## C

**cardiac catheter** – a long, flexible tube designed especially for passage through an artery or blood vessel

**cardiac tamponade** - Effusion of fluid in the pericardium (sac enclosing the heart) compresses the heart preventing normal filling.

**cardiomyopathy** – disease of the heart muscle, causes decreased functioning of the heart

**cardioversion** - delivery of a shock to the heart to interrupt arrhythmias. Paddles on the chest or electrodes placed directly on the heart are used. So called chemical cardioversion is intravenous administration of medications to terminate arrhythmias.

**catheter** – a small, plastic tube used to enter a cavity of the body

**chamber** – an enclosed space. (The heart is divided into four chambers. The upper chambers are called the right and left atrium, and the lower chambers are called the right and left ventricle

**congenital heart disease** - A heart defect present at birth.

**continuous loop recorder** - An electrocardiographic monitor worn for up to a month that stores limited periods of continuously recorded ECG.

**coronary artery** - either of the two arteries that originate in the aorta and supply blood to the heart

**coronary artery disease (CAD)** – result of the build-up of plaque deposits on the inner lining of the coronary arteries (heart attacks occur in the advanced stage of CAD)

**coronary spasm** - abnormal sustained constriction of a major coronary producing symptoms of ischemia.

**coronary thrombosis** – total blockage of the blood flow to the heart due to a blood clot in a coronary artery, also called a “heart attack” or “myocardial infarction”

**cyanosis** -- a dark bluish or purplish discoloration of the skin and mucous membrane due to deficient oxygenation of the blood

## D

**defibrillation** -- a process in which an electronic device gives an electric shock to the heart. This helps reestablish normal contraction rhythms in a heart having dangerous arrhythmia or in cardiac arrest. In recent years small portable defibrillators have become available. These are called automated external defibrillators or AEDs.

**dyspnea** -- shortness of breath; occurs normally during intense physical exertion or at high altitude

## E

**echocardiogram** -- a cardiac test and way to see the heart with the use of ultrasound imaging

**ejection fraction (EF)** -- the measurement of how much blood is pumped by the ventricles with each heart beat.

**electrocardiogram (EKG or ECG)** -- a method for studying the heart by measuring the electrical impulses of the heart as they are detected on the surface of the body

**electrode** -- patch that adheres to the skin to serve as the medium between the heart and an EKG recorder

**electrode catheter** -- a long, flexible wire that can transmit electrical currents to and from the heart

**electromagnetic interference (EMI)** - Impaired function of a pacemaker or ICD under the influence of electric and magnetic fields emitted by Magnetic Resonance Imaging (MRI), power plants, transmitter antennas, amusement parks, or nearby equipment such as, arc welders, CB radios, cellular phones, etc.

**epinephrine** - A vital hormone secreted by the adrenal glands. It plays an important role in cardiovascular and neural regulation. It is produced synthetically for use as a stimulant.

**extrasystoles** - extra beats, usually occurring earlier than expected in normal rhythm, triggered by impulses originating from an abnormal site. Premature contractions are common and usually require no treatment. However for patients with underlying heart disease they can be markers of a life threatening arrhythmia. Premature contractions PAC and PVC originate in the atria and ventricles respectively and Premature Junctional (AV nodal) originates in the vicinity of the AV node junction.

## H

**heart attack** -- a critical medical situation that occurs when the blood supply to the heart is blocked and death of heart muscle occurs

**heart block** -- impairment of the conduction system of the heart, blocks the heart's electrical pathways

**heart failure (HF)** - a condition where the heart fails in its duties of circulating blood through the lungs and back out to the tissues. Congestive heart failure refers to a heart failure condition in which the body has accumulated extra fluid so that the lungs are congested.

**hemodynamic monitoring** -- a diagnostic study that evaluates the movement of blood circulation

**his bundle** - The topmost part of the hearts wiring system between the AV node and the ventricles. The His bundle penetrates the electrically insulating fibrous layer between the atria and ventricles. See Normal Heart Structure & Function

**hypertension** -- high blood pressure that is exerted against the walls of blood vessels as blood is pumped through the body

**hypokalemia** - Low potassium concentration in the blood. Low potassium concentrations may invite arrhythmias. Certain diuretics may increase loss of potassium and produce hypokalemia.

## I

**ibutilide (corvert)** - An antiarrhythmic drug used for atrial fibrillation and flutter that works by prolonging the recovery of the heart muscle after electrical stimulation.

**implantable cardioverter defibrillator (ICD)** - a small battery-powered electrical impulse generator that delivers electrical shocks, or pacing therapy, when the heart suffers arrhythmias. ICDs are surgically installed, usually near the heart.

**ischemia** (ischemic = with held) - reduced nutrient blood flow to organs or tissue resulting in reversible or irreversible damage to tissue.

## L

**left ventricular ejection fraction (LVEF)** - the amount of blood ejected during a single contraction of the LV, expressed as a fraction of the amount of blood the LV contains at the onset of contraction. It measures the completeness of active ventricular emptying, an index of functional adequacy. Normal LVEF at rest is about 2/3 or 66%.

**lidocaine** - A drug administered intravenously for acute management of ventricular arrhythmias or for local anesthesia. See Antiarrhythmic Agent Class I

**Long QT syndrome** - An inherited electrical disease of the heart.

## M

**mitral valve** - The valve between the left atrium and the left ventricle functions like a one way door to keep blood flowing in one direction as it enters the left ventricle from the left atrium.

**myocardial infarction** – irreversible damage to the heart muscle due to a blocked coronary artery. This is sometimes referred to as an "infarct"

**myocarditis** – inflammation of the muscular walls of the heart

## P

**pacemaker (Artificial)** - An electrical device which delivers electrical impulses to produce a heart beat of desired frequency (fixed frequency). Modern pacemakers "kick in" on demand only when heart rate falls below a critical (chosen) value and may deliver impulses at rates adapted to physical activity (rate adapted). Implantable pacemakers are the mainstay of treating slow heart rhythms.

**pacemaker cells** - cardiac cells whose electrical oscillatory activity (clock like function) release electrical impulses eliciting rhythmic cardiac contraction. See Normal Heart Structure & Function

**pacing** - delivery of electrical stimulation to the heart muscle to produce a heart beat.

**palpitation** - forcible or irregular pulsation of the heart, usually with an increase in frequency or force, with or without irregularity in rhythm

**pericarditis** – inflammation of the pericardium

**pericardium** - sac that surrounds the heart

**plaque** – a combination of cholesterol, fatty deposits, cellular debris and calcium that form deposits on the inner lining of the coronary arteries, results in coronary artery disease

**proarrhythmia** - Creation of a new arrhythmia by drugs.

**procainamide** - A medication introduced in 1950 to treat supraventricular and ventricular arrhythmias.

**prosthesis** – an artificial substitute for a missing body part

**pulmonary artery** - The artery originating from the heart's right ventricle that carries oxygen-depleted blood to the lungs.

**pulmonary valve** - The valve between the right ventricle and the pulmonary artery.

**pulse** – the rhythmic expansion of an artery that can be felt with the finger on your wrists, neck and temple, reflects the number of times your heart beats each minute

**p wave** - part of the ECG recording reflecting depolarization of both atria.

## Q

**q wave** - First wave of the ECG recording reflecting ventricular activation.

**QRS complex** - part of the ECG recording reflecting ventricular depolarization.

**QT interval** - period of the ECG recording from the onset of the Q wave to the T wave.

## S

**sinus node** – the heart's natural pacemaker, produces electrical impulses to keep the heart beating at a healthy pace by causing the heart to contract and pump blood at regular intervals

**sinus rhythm - normal sinus rhythm (NRS)** - A normal heart rhythm of 60-100 beats per/min at rest originating from the sinoatrial node.

**sinus tachycardia** - A normal heart rate greater than 100 beats/min. It occurs as a desirable response to exertion, pregnancy, and emotion. It may also occur with, illness, circulatory problems, or drug use.

**stent** – an expandable mesh tube (about one-half inch long) that is placed in an artery to maintain the free flow of blood through the vessel following an angioplasty or atherectomy

**ST segment** - the segment of the ECG recording connecting the end of the QRS complex with the beginning of the T wave.

**sudden cardiac arrest** – a sudden abrupt loss of the heart's electrical system function. The most common cause of the arrest is an irregular heart rhythm (arrhythmia) called ventricular fibrillation (VF), in which the heart ventricles begin to quiver (fibrillate) instead of contract. When this happens, blood is no longer pumped to the rest of the body.

**sudden cardiac death (SCD)** - Generally SCD is defined as an unexplained (non-traumatic) death that occurs suddenly and unexpectedly within one hour of onset of symptoms. Death is usually due to cardiac arrhythmias ventricular tachycardia/fibrillation.

**supraventricular tachycardia (SVT)** - Arrhythmias caused by electrical events originating in the atria, i.e. above the ventricles.

**syncope** - loss of consciousness and postural tone caused by diminished cerebral blood flow usually associated with aging.

## T

**t wave** - ventricular repolarization wave inscribed on the ECG.

**tachycardia** – excessive rapidity in the action of the heart, usually above 100 beats per minute in an adult

**telemetry monitor** – a method for measuring a patient's vital signs from a distance, transmits through radio signals or other means and displays onto a monitor

**thrombus** – a clot in the cardiovascular system

**tilt table test** -- a test that involves placing the patient on a special table and standing him or her upright at 60 to 70 degrees for 30 to 45 minutes.

**torsade de pointes (Twisting of the points)** -- A unique form of ventricular tachycardia that can be congenital in origin or can result from antiarrhythmic or psychotropic drug therapy, hypocalcemia, or acute myocardial infarction.

**transducer** – a device that translates one form of energy to another, such as during an ultrasound when high frequency sound waves are transmitted through a transducer and then converted into electrical impulses

**transtelephonic event recorder** - A miniaturized computer chip operated unit that stores brief ECG recordings when patients experience symptoms.

**tricuspid valve** - The valve between the right atrium and the right ventricle that functions like a one way door to keep blood flowing in one direction as it enters the right ventricle from the right atria.

## U

**ultrasound** – an imaging modality that visualizes the body's internal structures by recording the pulsating "echoes" of sound waves that are directed into the tissues

## V

**valve** – membrane in a passage that prevents the reflux of the contents flowing through it

**valvular stenosis** – narrowing of the heart valves (the specific valve that is affected is often preceded by the word stenosis, i.e., aortic stenosis, mitral stenosis, pulmonary stenosis and tricuspid stenosis)

**vasodilators** are drugs that widen (dilate) blood vessels. They unload the heart because it requires less effort to pump a given amount of blood per minute through a system of wide vessels compared with narrow ones.

**ventricle** – a small cavity (the right and left ventricles of the heart have thick muscular walls that make up the bulk of the heart and propel blood through and from the heart)

**ventricular fibrillation (VF)** A rapid, disorganized, and chaotic contraction of ventricular muscle accompanied by loss of effective pumping of blood. It results in loss of consciousness and death if is not terminated immediately by delivery of shock with a defibrillator.

**ventricular tachycardia (VT)** A very rapid heart rhythm arising within the ventricles.

**vessel** – any channel for carrying a fluid, such as blood vessels, which include arteries, arterioles, capillaries, venules and veins

## W

**wolff-parkinson-white syndrome** - A syndrome with abnormal ECG and where aberrant conducting pathways allow inappropriate transmission of signals from the atria to the ventricles or back to the atria from the ventricles.