

Appendix 1



GLOSSARY OF TERMS USED IN THIS REPORT

Acidemia A condition in which the blood is more acid and less alkaline than normal.

Acidosis An abnormal condition resulting from an increase in acids or from a depletion of alkali in the blood and body tissues.

Acute A term used to describe a condition that appears suddenly or one that has a short and relatively severe course.

Adrenalin A drug that is used to increase the blood pressure, heart rate and force of contraction of the heart. This results in an increase in cardiac output from the heart. Injection of adrenalin, which is also known as epinephrine, may cause an irregularity of the heartbeat or an arrhythmia.

Alkalinity An abnormal condition resulting from a decrease in acids or from an increase of alkali in the blood and body tissues.

Anaesthesia A field of medicine involving the administration of drugs that produce a loss of consciousness or sensation. The term also means a drug-induced state of lack of feeling. This may affect the entire body (as in general anaesthesia), a region of the body (as in regional anaesthesia), or a small amount of tissue (as in local anaesthesia).

Anaesthetist A doctor who is specially trained to administer anaesthesia.

Annulus A structure shaped like a ring. For example, in the heart, the base of the mitral valve is termed the annulus.

Aorta The large artery that takes blood from the left ventricle of the heart to the body.

Aortic Pertaining to the aorta.

Aortic arch The second part of the aorta, which continues on from the ascending aorta and curves to the left and posteriorly (or backwards).

Aortic valve The valve in the heart between the left ventricle and the aorta. It has three flaps or cusps.

Arrhythmia An abnormal rhythm of the heart.

Artery A blood vessel that carries blood from the heart to various parts of the body. Most arteries carry blood that is rich in oxygen or well oxygenated. The main exception is the pulmonary artery.

Arterial pressure The blood pressure in the arteries of the systemic circulation.

ASA physical class A classification system adopted by the American Society of Anesthesiologists (ASA) and used by anaesthetists to assess the pre-operative physical state or condition of a patient. There are five categories, and adding the postscript 'E' indicates that the patient is to undergo an emergency operation. The ASA Class does not correlate with the risk of the anaesthetic, but does roughly correlate with the risk of post-operative complications.

Ascending aorta The first part of the aorta, which arises from the left ventricle and gives off the right and left coronary arteries before continuing as the aortic arch.

ASD See **Atrial septal defect**

- Atresia** The absence or closure of a normal body opening or tubular structure. For example, in pulmonary atresia there is blockage of the passage between the right ventricle and the lungs.
- Atrial** Pertaining to the atria.
- Atrial septal defect (ASD)** An abnormal opening or hole in the septum between the right and left atria. Normally, the flow of blood will be from left to right (left to right shunt). Blood flow from right to left (right to left shunt) will be present only if there are other complicating conditions leading to a higher pressure on the right side, such as pulmonary stenosis or tricuspid atresia, which impede or prevent the normal flow of blood from the right ventricle to the lungs.
- Atrioventricular (AV) canal defect** A defect in the heart in which there is a large hole in the centre of the heart. There are abnormal openings in the atrial and/or ventricular septa at the level of the atrioventricular valves. There are also often abnormalities of the mitral and/or tricuspid valves. These defects are also known by the inclusive term 'persistent common atrioventricular canal deformities'. There are three variants, which may be classified as partial, intermediate and complete AV canal deformities.
- Atrioventricular (AV) valves** The two valves that lie between the atria and the ventricles. These valves are the tricuspid (right) and the mitral (left) valves.
- Atrium** Either of the two upper chambers of the heart, in which blood collects before being pumped to the ventricles. (The plural is atria.)
- AV** See **atrioventricular valves**
- Azygous vein** An unpaired vein in the chest, which serves to connect the superior and inferior vena cavae, as well as the right intercostal veins.
- Bicuspid aortic valve** An abnormality of the aortic valve in which there are only two cusps, instead of the normal three.
- Blalock-Taussig shunt** An operation performed in cases of congenital pulmonary stenosis. An anastomosis is created between the aorta (or one of its branches, such as the subclavian artery) and one of the pulmonary arteries. This allows some of the blood from the systemic circulation to be shunted into the pulmonary circulation.
- Blood pressure (BP)** The force or pressure exerted by the heart in pumping blood through the arteries.
- BP** See **Blood pressure**
- Cannula** A tube inserted into a vessel to act as a channel for the transport of fluid. Cannulas come in different styles and sizes.
- Cannulation** The act of insertion of cannulas into blood vessels. This is a normal part of cardiopulmonary bypass.
- Cardiac** Pertaining to the heart.
- Cardiac arrest** When the heart stops on its own or is stopped from beating through drug or mechanical means.
- Cardiac catheterization** Examination of the heart by the passage of a thin tube or catheter into an artery or vein and up to the heart. This is done to sample oxygen, measure pressures and make X-ray videos of how the heart functions.
- Cardiac output** The volume of blood pumped by the heart each minute. The amount of cardiac output equals the volume of blood ejected with each heart beat (or stroke volume) multiplied by the heart rate.
- Cardiac surgery** Surgery on, within and around the heart. This may be open or closed-heart surgery.
- Cardiology** The study of the heart and its functions in health and disease.
- Cardioplegia** Intentional cardiac arrest or stopping of the heart (to allow cardiac surgery) by injection into (or perfusion of) the coronary arteries with a special salt or blood solution. The solution may be cold or warm and may contain different chemicals and drugs. Repeated injections are necessary for prolonged operations.
- Cardiopulmonary** Pertaining to the heart and lungs.
- Cardiopulmonary bypass (CPB)** Diversion of the venous blood going to the heart into a machine via a cannula. The machine then adds oxygen and removes (if necessary) carbon dioxide from the blood and pumps it via another cannula into the arterial side of the circulation, bypassing the heart.
- Cardiovascular** Pertaining to the heart and blood vessels.
- Cardioversion** Correction of an abnormal heart rhythm and restoration of normal rhythm by delivery of one or more mild electric shocks through the chest or directly onto the heart. The machine used is called a cardioverter (or defibrillator).
- Catheterization** The act of insertion of a catheter into a vessel or tube, which could be an artery, a vein or a bladder.
- Central venous pressure** The pressure in the right atrium and large veins of the chest. An estimate of this measurement may be made by examining the large (jugular) vein in a patient's neck. The pressure may also be measured directly by inserting a special cannula into the jugular vein. This measurement can give an estimate of the adequacy of the return of venous blood to the heart and how the right side of the heart is functioning.

CHF See **Congestive heart failure**

Circulating nurse An operating-room nurse who does not 'scrub in' and does not wear sterile clothing (except to relieve the scrub nurse). The circulating nurse helps prepare the patient for the operation, may assist the anaesthetist and carries out non-sterile surgical tasks, such as opening packets of sutures, or obtaining equipment from outside the operating room.

Closed-heart surgery Surgery carried out on and around the heart, and without use of a heart-lung machine or stopping the flow of blood to the heart.

Coarctation of the aorta A constriction or narrowing of the main blood vessel (aorta) that carries blood from the heart to the body. The narrowing is situated somewhere along the vessel and restricts blood flow from the heart to the rest of the body. Patients with coarctation generally have hypertension with high blood pressures in the arms and low pressures in the legs. They may also have associated hypertrophy of the left ventricle and a heart murmur, and may present with cardiac failure.

Complete atrioventricular canal defect The most severe type of the atrioventricular canal deformities. This lesion is characterized by direct communication between the right and left ventricles and absence of the openings to the mitral and tricuspid valves.

Complete heart block Complete blockage of the heart's normal electrical current between the atria and ventricles. This condition almost always requires treatment with a pacemaker, after emergency treatment with drugs (and sometimes with external cardiac massage).

Congenital Refers to conditions that are present at birth, regardless of their causation.

Congestive heart failure (CHF) The inability of either the right or the left ventricle to pump all the blood that returns to it. As a result, blood backs up in the blood vessels leading to that ventricle and the vessels become congested with blood. Failure of the right ventricle (or right heart failure) leads to blood backing up in the liver and legs. Failure of the left ventricle (or left heart failure) leads to blood backing up in the lungs.

Coronary arteries The two arteries, right and left, which arise from the ascending aorta, curve down over the top of the heart and then branch out over the surface of the heart. The right coronary artery (RCA) supplies most of the right ventricle, while the left coronary artery (LCA) supplies most of the left ventricle. These arteries supply the working heart muscle with oxygen. Blockage of an artery or one (or more) of its branches may lead to the heart being starved of oxygen, causing a myocardial infarction.

CPB See **Cardiopulmonary bypass**

Cross clamp (X-clamp) A special clamp that is applied to the aorta to prevent the flow of blood through the aorta while some type of surgical procedure is performed on the heart or the aorta.

Cross-clamp time The length of time that the aorta is cross-clamped and blood does not flow through the aorta (or into the coronary arteries).

Cusp The flap or leaflet portion of any of the heart valves that forms the movable part of the valve.

Cyanosis A bluish discoloration of the skin that indicates that the hemoglobin in the blood has a reduced amount of oxygen. Peripheral cyanosis (for example, of the fingernails) occurs when there is a reduction in blood flow to the extremities. Central cyanosis (for example, of the tongue) occurs when there is lung or heart disease, such as a right to left shunt or inadequate breathing.

Definitive repair Surgical repair of a lesion, which corrects the underlying abnormality.

Deoxygenated Having a reduced amount of oxygen, as in deoxygenated or 'blue' blood.

Descending aorta The part of the aorta that curves down from the heart and extends down into the abdomen to where the aorta branches into the common iliac arteries.

Diastolic Pertaining to diastole or the relaxation phase of the heart's pumping cycle.

Digoxin A drug often used in the treatment of congestive heart failure. Digoxin makes the heart muscle pump more strongly, slows the rate or speed at which the heart beats and increases blood flow to the kidneys, which helps in the removal of excess fluid from the body. The same drug is sometimes used to treat certain arrhythmias.

Distal Away from. (The opposite of proximal.)

Diuretic A drug that increases the production of urine by the kidneys. As a result, a patient may excrete more water and salts from the body.

Double outlet (right) ventricle A condition in which both the pulmonary artery and the aorta connect to the right ventricle.

Ductus arteriosus An arterial duct or vessel in the fetal heart that connects the left pulmonary artery to the descending aorta. The ductus arteriosus allows blood to bypass the lungs in the fetal circulation and normally closes shortly after birth. If it does not close, the condition is termed patent ductus arteriosus.

Dysplastic Any tissues that are abnormally developed.

ECG See **Electrocardiogram**

ECHO See **Echocardiogram**

Echocardiogram (ECHO) The use of ultrasound to produce images of the inside of the heart and how it works.

ECMO See **Extra-Corporeal Membrane Oxygenation**

EKG See **Electrocardiogram**

Electrocardiogram (ECG or EKG) A graphic record of the electrical impulses produced by the heart. This record shows the rate, rhythm and site of origin of these electrical impulses, as well as if the patient has had damage to the heart, such as a heart attack.

Extra-Corporeal Membrane Oxygenation (ECMO) A method of providing life-support for a patient whose heart and/or lungs have failed. ECMO is a form of long-term cardiopulmonary bypass. A cannula takes blood from the body to a special membrane outside the body (or extracorporeal), where oxygen is added and carbon dioxide is removed. The blood is then returned to the body through another cannula.

Epinephrine A drug that is used to increase the blood pressure, heart rate and force of contraction of the heart. This results in an increase in cardiac output from the heart. Epinephrine, which is also known as adrenalin, may cause an irregularity of the heartbeat or an arrhythmia.

Fetal Pertaining to the fetus.

Fetus A human embryo before birth.

Foramen ovale A natural opening in the septum between the two atria that allows blood to bypass the lungs in the fetal circulation. Failure of the foramen ovale to close leads to a defect in the septum known as a patent foramen ovale or PFO.

Heart block The interruption or blockage of the normal conduction of electrical impulses in the heart. Heart block is classified as first degree, second degree or third degree (also known as complete heart block).

Heart failure Inability of the heart to pump sufficient blood (or cardiac output) to the body and/or the lungs. Heart failure can affect either the right ventricle or the left ventricle or both. As a result, blood backs up in the blood vessels leading to that ventricle and the vessels become congested with blood. Failure of the right ventricle (or right heart failure) leads to blood backing up in the liver and legs. Failure of the left ventricle (or left heart failure) leads to blood backing up in the lungs. This may then lead to right heart failure. Sometimes the term congestive heart failure (CHF) is used to describe left heart failure.

Heart murmur An abnormal sound heard when the heart beats. This sound may result simply from increased blood flow in the heart—the murmur is termed physiological and is not considered serious. Other murmurs are caused by blood flowing through abnormal openings in the heart (such as a patent foramen ovale) or through an abnormal heart valve (such as aortic stenosis).

Heart sounds Noises produced as the heart valves open and close in precise sequence, allowing blood to flow forward into the next chamber and not backward. It is the closing of these valves that produces the heart sounds, as in the familiar ‘lub-dub.’

Hemoglobin The special compound in red blood cells to which oxygen attaches.

Hemorrhage Bleeding or loss of blood, which may be sudden (acute) or chronic.

Heparin A drug used to decrease the ability of the blood to clot, resulting in an increase in (or prolongation of) the clotting time. In cardiopulmonary bypass, heparin is used to prevent clots from forming in the heart-lung machine.

Hypertension An increase in blood pressure, either of the systemic circulation or of the pulmonary circulation.

Hypertrophy An increase in size or overgrowth of a tissue or organ. In the heart, either the left or the right ventricle may hypertrophy in response to increased work of pumping blood.

Hypoplasia Underdevelopment of a tissue or organ. An example would be hypoplasia of the aortic arch, where blood flow to the body is hampered by an underdeveloped and therefore restricted aortic arch.

Hypoplastic Pertaining to hypoplasia or underdevelopment.

Hypoplastic aortic arch Underdevelopment of the aortic arch, leading to restricted blood flow through the aorta.

Hypoplastic left-heart syndrome A complex group of congenital heart lesions, including hypoplasia or even complete absence of the left ventricle and severe hypoplasia of the aorta. There may also be a combination of aortic and mitral valve stenosis or aortic and mitral valve atresia.

Hypoplastic left ventricle Underdevelopment of the left ventricle of the heart.

Hypothermia A reduction in the central or core temperature of the body below 36 degrees Celsius. In cardiac surgery, a patient may be made hypothermic, by infusing cold liquids into the circulation and/or packing ice around parts of the body. This is done in order that the flow of blood to the brain and other tissues may be reduced, thus allowing the

surgeon to safely repair the heart, without damage occurring in the organs that would otherwise be starved of oxygen. With deep hypothermia, the patient (usually an infant) is intentionally cooled to about 16 to 20 degrees Celsius. This allows surgeons to be able to stop the heart for about 45–60 minutes and to operate without either the heart moving or tubing or blood being in the very small operative field.

Hypoxia A reduction in the amount of oxygen available for use by the tissues of the body.

Hypoxic Pertaining to a reduction in the amount of oxygen.

Inferior vena cava (IVC) The major vein that carries the deoxygenated blood from the lower limbs and most of the organs of the pelvis and abdomen. The IVC returns this blood to the right atrium.

Interrupted aortic arch When the aorta does not develop completely in the area of the arch. As a result, the aorta is divided into two parts that are not connected to each other, preventing blood flow through the aorta.

Intracardiac Within the heart.

Invasive A technique of studying the body in which instruments are inserted inside the body.

IVC See **Inferior vena cava**

JET See **Junctional ectopic tachycardia**

Junctional ectopic tachycardia (JET) A very rapid heart beat that can be fatal if not properly controlled.

Left-to-right shunt Abnormal direct passage of oxygen-rich blood from the left side of the heart to the right side, at the level of the atria or the ventricles.

Left ventricular failure When the left ventricle is unable to pump all the blood out through the aorta. The blood then backs up within the left ventricle and then progressively into the left atrium and into the lungs. Fluid then builds up in the lungs.

Ligate To tie off, by application of a ligature or suture. For example, in cardiac surgery, the surgeon may ligate a patent ductus arteriosus.

Ligature A thread or suture that is tied tightly around a blood vessel or another structure.

Mitral valve The heart valve between the left atrium and the left ventricle. This valve has two flaps or cusps and is one of the two atrioventricular valves.

Murmur An abnormal heart sound.

Neonate A newborn child aged from birth to six weeks.

Norwood operation or procedure A stage in the surgical treatment of hypoplastic left heart syndrome. In this operation, a pulmonary homograft is used to enlarge the rudimentary aortic arch and then join it to the functioning pulmonary artery.

Open-heart surgery Surgery carried out on the heart that is opened or its major blood vessels, while the blood is diverted through a heart-lung machine.

PA See **Pulmonary artery**

Pacemaker An electrical device that can be used to replace the heart's defective natural pacemaker or conduction pathway. The artificial pacemaker emits a series of electrical discharges from a battery and so controls the rate and rhythm of the heartbeat.

Palliative Reducing the severity or alleviating the symptoms of a condition without curing the underlying abnormal condition. Does not usually offer a good long-term outcome.

Partial anomalous pulmonary venous return Oxygenated blood returning from the lungs is carried by one or more pulmonary veins emptying directly or indirectly through venous channels into the right atrium instead of the left atrium. This lesion functions in a manner similar to an atrial septal defect.

Patent ductus arteriosus (PDA) A condition in which the ductus arteriosus fails to close shortly after birth. This results in a significant right to left shunt of blood. Babies with this condition often develop heart and lung failure. Treatment with drugs (indomethacin) is possible, and surgical ligation is often necessary.

Patent foramen ovale (PFO) A failure of the foramen ovale to close, resulting in an opening in the septum between the two atria.

Pediatrics (Paediatrics) The branch of medicine that deals with the development and care of children, as well as the diseases and treatment of children.

PDA See **Patent ductus arteriosus**

Perfusion The act of forcing liquid to flow through the vessels of an organ. In heart surgery, the term perfusion refers specifically to use of the heart-lung machine for cardiopulmonary bypass.

Perfusionist A person who is specially trained to operate a heart-lung machine for cardiopulmonary bypass. In Canada, perfusionists are technicians, although in some countries, doctors act as perfusionists.

PFO See **Patent foramen ovale**

Pulmonary artery (PA) The large artery that carries blood from the right ventricle to the lungs.

- Pulmonary artery stenosis** Narrowing of the vessels involved in pulmonary blood flow caused by an underdevelopment of the area around the lung valve and along the pulmonary arteries. This narrowing can be anywhere from just a blockage at the valve to thickening below the valve. There can also be narrowing of the pulmonary artery above the valve, and the vessel can narrow into both of the branches that go to the lungs.
- Pulmonary atresia** Absence of the normal opening from the right ventricle into the pulmonary artery.
- Pulmonary blood flow** The flow of blood from the right ventricle through the pulmonary arteries to the lungs and back through the pulmonary veins to the left atrium.
- Pulmonary circulation** The circulation from the right side of the heart through the lungs to the left side of the heart.
- Pulmonary hypertension** An increase in pressure in the blood vessels of the pulmonary circulation.
- The pulmonary trunk** The common stem of the pulmonary arteries, which arises from the upper surface of the right ventricle and then divides into the right and left pulmonary arteries.
- Pulmonary valve** The valve in the heart between the right ventricle and the pulmonary artery.
- Pulmonary valve stenosis** An abnormal narrowing of the pulmonary valve. If the narrowing is mild and there are no other abnormalities, the patient may be symptom-free. Moderate and severe stenosis will impair the flow of blood to the lungs, and right ventricular hypertrophy will develop in response to the increased work of pumping blood through a narrowed opening.
- Pulmonary vein stenosis** Narrowing of the pulmonary veins.
- Pulse** The wave of increased pressure produced in the blood vessels of the body each time the left ventricle contracts.
- Regurgitation** The abnormal backward flow of fluid. In the heart, regurgitation occurs when blood flows backward through a valve and into a chamber from which it was already pumped. This increases the work of the heart.
- Right-to left-shunt** The abnormal direct passage of oxygen-poor blood from the right side of the heart to the left side, at the level of the atria or the ventricles. This blood does not pass through the lungs, with the result that there is a dilution or lessening of the amount of oxygen in the blood going to the body.
- Scrub nurse** An operating room nurse who ‘scrubs in’ and wears sterile clothing and gloves. This nurse helps the surgeon before the operation by preparing the instruments and other equipment that will be used and then during the operation by handing the instruments to the surgeon.
- Septum** A muscular wall that divides the two chambers on the right side of the heart from the two chambers on the left. The atrial portion of the septum divides the top chambers, the right and left atria. The ventricular portion of the septum divides the bottom chambers, the right and left ventricles. (Plural: septa)
- Shunt** A passage between two blood vessels or two chambers of the heart. A shunt may occur naturally (as in a left-to-right shunt through an ASD) or may be artificially formed (as in creation of a Blalock-Taussig shunt).
- Stenosis** Narrowing or constriction of an opening, such as a heart valve.
- Sternotomy** Incision into or through the sternum or breast bone.
- Sternum** The breast bone.
- Stroke volume** The volume of blood ejected by the heart with each heart beat.
- Subpulmonary stenosis** Narrowing of the entrance to the pulmonary valve in the right ventricle.
- Superior vena cava (SVC)** The major vein that receives the deoxygenated blood from the upper limbs and the head and neck. The SVC returns this blood to the right atrium.
- SVC** See **Superior vena cava**
- Systemic blood flow** Blood flow to the body, as opposed to pulmonary blood flow.
- Tachycardia** An abnormally rapid beat. In an adult, a heart rate of more than 100 beats per minute is termed a tachycardia. In a child, the definition of tachycardia depends on the age of the child and from which part of the heart the increase in heart rate originates.
- TAPVC** See **Total anomalous pulmonary venous connection**
- TCA** See **Total circulatory arrest**
- TEE** See **Transesophageal echocardiography**
- Tetralogy of Fallot** This congenital heart lesion has four major abnormalities. These are a hole or defect in the ventricular septum (VSD), displacement of the aorta overtop the ventricular septum, hypertrophy of the muscle of the right ventricle and obstruction to blood flow from the right ventricle or right ventricular outflow tract obstruction (which most often results from pulmonary stenosis). Babies with Tetralogy of Fallot are often referred to as ‘Tet’ babies.

Tet spells Patients with Tetralogy of Fallot can suffer from Tet spells or periods when they are extremely cyanotic. The symptoms are most often brought on by activity. Tet spells usually indicate an urgent need for repair of the heart defect.

Thoracotomy Incision into the chest wall.

Total circulatory arrest (TCA) Complete stoppage of the circulation of the heart, including complete stoppage of the heart-lung machine. This allows the surgeon to work on the heart without blood or perfusion cannula partially obscuring the surgical site. This technique requires deep hypothermia so that the tissues of the body, especially the brain, are protected from the prolonged lack of oxygen.

Total anomalous pulmonary venous connection (TAPVC) All of the oxygenated blood returning from the lungs is carried abnormally to the right heart by one or more pulmonary veins emptying directly or indirectly through venous channels into the right atrium instead of the left. A connection between the right and left atria (or inter-atrial connection) is necessary to allow oxygenated blood to reach the left side of the heart for distribution to the rest of the body.

Transesophageal echocardiography (TEE) A type of specialized examination of the heart, which involves performing echocardiography by placing the ultrasound probe in the patient's esophagus, rather than against the chest wall. When used during cardiac surgery, TEE allows the surgeon to evaluate the adequacy of the repair of the congenital heart defects, the adequacy of function of the ventricles and the valves and the presence of any residual intracardiac shunts.

Transposition of the great arteries/vessels A congenital abnormality where the two major blood vessels are switched in their positions, so that the aorta arises from the right ventricle and the pulmonary artery arises from the left ventricle. As a result, the pulmonary and systemic circulations work independently, producing a severe lack of oxygen after birth. Survival of the infant is possible only if there is a connection between the two circulations, such as an ASD, a VSD or a patent ductus arteriosus.

Tricuspid atresia Congenital absence of the normal valvular opening between the right atrium and the right ventricle. There is also a small right ventricle, a large left ventricle and decreased pulmonary circulation. Blood from the right atrium passes through an atrial septal defect into the left atrium, where it mixes with oxygenated blood returning from the lungs, then flows into the left ventricle and out into the systemic circulation. Blood reaches the lungs through an atrial septal defect and a ventricular septal defect.

Tricuspid valve The valve of the heart between the right atrium and the right ventricle. This valve is one of two atrioventricular valves.

Ultrasound High-frequency sound vibrations that cannot be heard by a human ear and are used in medical diagnosis. In pediatric cardiology, one use of ultrasound includes echocardiography, which gives a picture of the heart and how it functions. In obstetrics, ultrasound is used to monitor the development and well-being of the fetus.

Valve A membranous fold in part of the body that prevents the back-flow of blood or other fluids. In the heart, there are four valves that help propel the blood flow forward.

Vascular Pertaining to the blood vessels.

Vein A blood vessel that carries blood from various parts of the body back toward the heart. Most veins carry blood that is low in oxygen or deoxygenated. The main exception is the pulmonary vein.

Vena cava The major vein of the body, which carries blood back to the right side of the heart. The superior vena cava (SVC) drains the top part of the body, while the inferior vena cava (IVC) drains blood from the lower part of the body.

Venous Pertaining to veins.

Venous return The blood that is carried in the veins from all parts of the body (including the heart itself) back to the right side of the heart.

Ventricle One of the two lower pumping chambers of the heart.

Ventricular septal defect (VSD) An abnormal opening or hole in the septum between the two lower chambers or ventricles of the heart. Flow of blood is normally from left to right (left to right shunt), because of the higher pumping pressures produced by the left ventricle. If pulmonary hypertension develops, the shunt may be reversed, with blood flowing from right to left. This will result in oxygen-poor blood being delivered to the systemic side of the circulation, and the patient will appear cyanosed.

VSD See **Ventricular septal defect**

X-clamp See **Cross clamp**

