Equipment

Great strides have been made in the quality of heart treatment available today, thanks in large part to advances in technology. Some of the equipment used to treat heart patients includes:

Chest Tube

These small tubes are placed into the space between the chest wall and the lung, called the pleural space. These are placed after heart surgery to prevent accumulation of body fluids. The chest tube collection chamber will accumulate drainage, which should typically diminish in amount each day.

Central IV Lines

An IV or intravenous line may be placed in a vein that leads to the right atrium of the heart. Its purpose is to deliver intravenous fluids, nutrients and/or medications. It may also be used to monitor central heart pressures.

An arterial line is a catheter placed into an artery, one of the vessels that pulsate, to measure blood pressure and oxygen levels.

Defibrillator System (Implantable Cardioverter Defibrillator and Leads)

When the electrical activity in the heart is too rapid and chaotic to allow the heart to effectively pump blood to the body, an implantable cardioverter defibrillator (ICD) may be implanted to send a burst of strong electricity ("shock") to reset the electrical signals in the heart to beat in a consistent, regular manner. The defibrillator can also function like a pacemaker when the heart is beating too slowly or irregularly. Like a pacemaker, a defibrillator contains a battery and mini-computer, along with other electrical components to create enough energy to shock the heart. Leads (insulated wires) transmit information between the heart and the ICD, sensing the activity in the heart muscle and carrying electrical signals to the heart from the ICD.

Defibrillators typically last from 4-6 years, depending on use. Medical personnel

should check defibrillator and lead function periodically to ensure optimal treatment. A physician should be consulted prior to engaging in sport activity.

Endotracheal Tube (ET Tube)

This tube is inserted, usually through the mouth, into the windpipe, or trachea, to provide an airway. At the same time, the ET Tube can prevent intake of foreign material into the lungs. In adults, there is a cuff that is inflated to help hold this tube in place. It is also taped in place over the patient's mouth and nose.

Foley Catheter

A Foley Catheter is a tube placed into the bladder to drain out urine. The tube is held in place by a small balloon, which is inflated in the bladder after insertion. Often after surgery, a patient's IV and oral intake as well as urinary output will be monitored closely.

Heart Lung Bypass Machine

This machine is used during open-heart surgery to oxygenate and pump the blood through the body while the heart is temporarily stopped for surgical repair.

Heart Monitoring Equipment

Before, during, and after surgery, the patient will be monitored with equipment at the bedside. This equipment usually records heart rhythm, heart rate, respiratory rate, pulse oximetry (the measure of oxygen in the blood) and any central line pressure readings.

Nasogastric Tube (NG Tube)

This tube is placed through the nose into the stomach and is used to either keep the stomach empty by pumping out gastric contents or to convey food into the stomach.

Oxygen

Oxygen is a colorless, odorless and tasteless gas required for breathing. It can be delivered by room air, or through a tube called a nasal cannula, through a mask or a

tent, or through the ET tube. The blood then carries oxygen to the different tissues in the body. Because oxygen provides support for combustion, it should never be used in the presence of a lighted cigarette or open flame, or where there is the possibility of an electrical spark.

Pacemaker System (Implantable Pulse Generator and Leads)

When the heart beats too slowly or irregularly, a pacemaker may be implanted under the skin to improve and monitor the heart function. A pacemaker is a small, thin electronic device containing a battery and mini-computer that senses and responds to the electrical activity in the heart. When the heart does not generate consistent electrical activity on its own, the pacemaker artificially creates the electrical activity that will cause the heart to beat. A lead is an insulated wire that carries these impulses from the pacemaker to the heart and in reverse, carries information on the electrical activity in the heart to the pacemaker.

Pacemakers typically last from 6-10 years, depending on use. Medical personnel should check pacemaker and lead function periodically to ensure optimal treatment. A physician should be consulted prior to engaging in sport activity.

Pulse Oximeter

This is a noninvasive sensor that is clipped to a patient's finger, ear, or toe to monitor blood oxygen levels.

Suction Procedure

A catheter is inserted into the ET (endotracheal) tube, mouth or nose and a vacuum is activated to clear the airway of any secretions or foreign bodies. Often sterile water or saline (salt solution) is used to liquefy thick secretions before suctioning.

Temporary Pacemaker

Often after open-heart surgery, it is necessary to use an external temporary pacemaker until any heart swelling resolves and the heart's own pace-making mechanism is restored. The temporary pacemaker is a small box, which is attached by wires to the patient's chest.

Ventilator/Respirator

This mechanical device ventilates the patient by providing air to and from the lungs. It allows for administration of oxygen and removal of carbon dioxide from the body. The machine is connected to the ET tube to assist with breathing.