CSET Medical Devices Descriptions

This document describes the individual medical components within CSET. All these components are contained within the medical devices stencil in the CSET Diagram editor. The stencils are also available for visio.

Component Name: Emergency Medical Service Communications Hardware

Stencil: Medical

Description: In most places in the world, the EMS is summoned by members of the public (or other emergency services, businesses, or authorities) via an emergency telephone number which puts them in contact with a control facility, which will then dispatch a suitable resource to deal with the situation. The emergency medical respone communications hardware consists of dispatch panel, radios, and cellular devices used by medical personnel to communicate with personnel in the field, or locally within a medical campus.

Component Name: Imaging Modalities and Equipment

Stencil: Medical

Description: Medical imaging is the technique and process of creating visual representations of the interior of a body for clinical analysis and medical intervention, as well as visual representation of the function of some organs or tissues (physiology). Medical imaging seeks to reveal internal structures hidden by the skin and bones, as well as to diagnose and treat disease. Medical imaging also establishes a database of normal anatomy and physiology to make it possible to identify abnormalities. Although imaging of removed organs and tissues can be performed for medical reasons, such procedures are usually considered part of pathology instead of medical imaging.

As a discipline and in its widest sense, it is part of biological imaging and incorporates radiology which uses the imaging technologies of X-ray radiography, magnetic resonance imaging, medical ultrasonography or ultrasound, endoscopy, elastography, tactile imaging, thermography, medical photography and nuclear medicine functional imaging techniques as positron emission tomography (PET) and Single-photon emission computed tomography (SPECT).

Measurement and recording techniques which are not primarily designed to produce images, such as electroencephalography (EEG), magnetoencephalography (MEG), electrocardiography (ECG), and others represent other technologies which produce data susceptible to representation as a parameter graph vs. time or maps which contain data about the measurement locations. In a limited comparison these technologies can be considered as forms of medical imaging in another discipline.

Component Name: Imaging Server

Stencil: Medical

Description: Most medical imaging devices require some form of image storage and computing support. Imaging servers are the general class of imaging storeage or computing and support devices.

Component Name: Physiological Monitoring System

Stencil: Medical

Description: In medicine, monitoring is the observation of a disease, condition or one or several medical parameters over time.

It can be performed by continuously measuring certain parameters by using a medical monitor (for example, by continuously measuring vital signs by a bedside monitor), and/or by repeatedly performing medical tests (such as blood glucose monitoring with a glucose meter in people with diabetes mellitus).

Examples of possible monitoring systems include: Cardiac monitoring, Hemodynamic monitoring, Respiratory monitoring, Capnography, Neurological monitoring, Blood glucose monitoring, or Childbirth monitoring.

Component Name: Real Time Location System

Stencil: Medical

Description: Real-time locating systems (RTLS) are used to automatically identify and track the location of objects or people in real time, usually within a building or other contained area. Wireless RTLS tags are attached to objects or worn by people, and in most RTLS, fixed reference points receive wireless signals from tags to determine their location. Examples of real-time locating systems include tracking automobiles through an assembly line, locating pallets of merchandise in a warehouse, or finding medical equipment in a hospital.

The physical layer of RTLS technology is usually some form of radio frequency (RF) communication, but some systems use optical (usually infrared) or acoustic (usually ultrasound) technology instead of or in addition to RF. Tags and fixed reference points can be transmitters, receivers, or both, resulting in numerous possible technology combinations.

Component Name: Magnetic Resource Imaging (MRI)

Stencil: Medical

Description: Test that uses a magnetic field and pulses of radio wave energy to make pictures of organs and structures inside the body

Component Name: XRay Generator

Stencil: Medical

Description: Uses x-ray light to view the internal structure of a non-uniformly composed and opaque object such as the human body.

Component Name: CT Scanner

Stencil: Medical

Description: A device that uses x-ray computed tomography (X-ray CT) or computerized axial tomography (CAT) that makes use of computer-processed combinations of many X-ray images taken from different angles to produce cross-sectional (tomographic) images (virtual 'slices') of specific areas of a scanned object, allowing the user to see inside the object without cutting)

Component Name: Ultrasound

Stencil: Medical

Description: A diagnostic imaging device based on the application of ultrasound. Used to see internal body structures such as tendons, muscles, joints, vessels and internal organs.

Component Name: Linear Partical Accelerator (Linac)

Stencil: Medical

Description: Device that generates X-rays and high energy electrons for medicinal purposes in radiation therapy.

Component Name: Endoscopy System

Stencil: Medical

Description: Device used to look inside the body for medical reasons

Component Name: EEG

Stencil: Medical

Description: An electroencephalogram (EEG) is a test that detects electrical activity in your brain using small, flat metal discs (electrodes) attached to your scalp. Your brain cells communicate via electrical impulses and are active all the time, even when you're asleep.

Component Name: ECG

Stencil: Medical

Description: An ECG is a simple, noninvasive procedure. Electrodes are placed on the skin of the chest and connected in a specific order to a machine that, when turned on, measures electrical activity all over the heart. Output usually appears on a long scroll of paper that displays a printed graph of activity on a computer screen.

Component Name: EMG

Stencil: Medical

Description: Electromyography (EMG) is a diagnostic procedure to assess the health of muscles and the nerve cells that control them (motor neurons). Motor neurons transmit electrical signals that cause muscles to contract.

Component Name: Infusion Pump

Stencil: Medical

Description: An infusion pump is a medical device that delivers fluids, such as nutrients and medications, into a patient's body in controlled amounts. Infusion pumps are in widespread use in clinical settings such as hospitals, nursing homes, and in the home.

Component Name: Medical Gas System

Stencil: Medical

Description: Medical piped gas systems in hospitals, and most other healthcare facilities, are essential for supplying piped oxygen, nitrous oxide, nitrogen, carbon dioxide and medical air to various parts of the hospital. These systems are usually highly monitored by various computerized alarm systems

Component Name: Urodynamic Measurement System

Stencil: Medical

Description: Systems designed to measure and evaluate the storage and transportation of urine in the urinary tract. These systems consist of a set of units that are combined to perform all the measurement functions as well as display and recording devices. The systems include uroflowmeters and uroflow transducers for external measuring of the urinary flow, volume voided, peak flow, and voiding time; manometers to determine the urethral pressure profile; cystometers either liquid or gaseous to measure bladder capacity and response; and recorders with appropriate sensors to assess sphincter and other muscle activity. Many systems also include video urodynamics capabilities to allow radiographic and urodynamic studies to be performed with synchronous display and recording of urodynamic studies and cystourethrography imaging. Urodynamic measuring systems are used in diagnosing neurogenic bladder diseases, stress incontinence, urinary path obstructions, and spastic sphincters.

Component Name: Infant Protection Remote Display Unit

Stencil: Medical

Description: An Infant Protection System provides hospital-wide protection against infant abduction and mother/infant mismatches, with each infant individually protected by multiple layers of security