Holy Cross Hospital
Taos Health Systems

Diagnose Heart Disease with Breakthrough Technology in Taos

By Maria Meadowcroft

Using Computed Tomography (CT) to diagnose cardiovascular disease gives physicians the ability to project a patient's future risk for heart attack or stroke before symptoms occur. Holy Cross Hospital has this technology.

"The really cool thing about the expansion of our 64 slice CT scanner is the ability to superimpose the images to get a better look at the heart, vessels, and arteries around it. During a CT scan the scanner rotates around a patient and takes a large number of x-ray images from a variety of angles," says Mike Romero, Director of Imaging at Holy Cross Hospital. "The images are then sent to a computer for processing. The software is able to take out the bone and tissue to create a 3-D image of only of the patient's heart."

The technology uses a state of the art 64-slice CT scanner and a computer to detect heart disease before symptoms develop by creating detailed images in a shorter amount of time. Numerous images are obtained in minutes creating a three-dimensional view of the heart and blood vessels.

"These images recreate heart function used to answer a variety of questions, it will be employed primarily for risk stratification and for diagnosis of coronary artery disease," says Luis Constantin, MD, Cardiologist at Taos Medical Group. "The diagnostic capabilities are an excellent alternative to invasive coronary cardiac catheterization."

Once these images are created a radiologist and cardiologist evaluate those images to determine if the patient has heart disease. There are different types of CT scans used to diagnosis heart disease including:

- CT Coronary Calcium Score
- Coronary CT Angiogram (CCTA)

CT Coronary Calcium Score

A CT calcium-score screening uses a CT scanner along with special software to visualize and measure calcium deposits found in plaque (atherosclerotic) within the coronary arteries. It is used to determine the presence and severity of coronary artery disease. The amount of calcium correlates with the overall severity of atherosclerosis in these arteries. This test is the most sensitive screening test for predicting future cardiac events.

Coronary CT Angiogram (CCTA)

This noninvasive heart imaging test is fast and reliable. It provides a full cardiac medical imaging study used to look at the arteries in the body. It identifies and assesses the coronary arteries for narrowing that may impair blood flow. This can include cardiac abnormalities, pericardial disease and surrounding non-cardiac disease. These tests were previously performed using invasive catheter techniques. By using the CCTA the images are created in minutes, they can be performed with at a lower risk with a decreased chance of infection.

Before the CT test is performed an iodine-containing contrast dye is injected into an IV in the patient's arm. This contrast agent highlights blood flow. This allows for improved image quality so the physician can visualize the arteries and veins in the patient.

 "The heart is difficult to visualize because it constantly moves and changes as it beats. The CT scanner and software technology allows us to merge studies so that we get a good picture of all that is really going on inside the body," Says Luscombe.

This technology re-creates cardiac function by creating images in real-time; they can be played as a video clip that shows the movement of the heart during the heartbeat. This technology can prevent a heart attach through early detection of coronary artery disease.