

Imaging Services

 **ROPER**
ST. FRANCIS
HEALTHCARE



What is Imaging Services?

Imaging Services, also referred to as *Radiology*, is a branch of medicine that uses a variety of imaging tools to assist in diagnosing injuries and diseases. Several specialized tools are used in Imaging Services. The following is an overview of some of the major imaging technologies used by our Imaging Services team.

DIAGNOSTIC X-RAYS

X-rays are a form of radiant energy, like light or radio waves, that produce images of the body. These waves show different features of the body and produce various shades of gray depicting organs and bones. Diagnostic exams that use x-rays include plain radiography, mammography, computed tomography (CT) and fluoroscopy.

X-rays are a safe method for certified personnel to gain information. Radiologists are trained to use the minimum amount of radiation necessary to obtain accurate results. The amount of radiation used in an examination is very small and no radiation remains after an x-ray exam. Always inform your x-ray technician if you may be pregnant. At Roper St. Francis, x-rays are performed by a licensed Radiologic Technologist.

CT (COMPUTED TOMOGRAPHY)

CT, sometimes called a CAT scan, is a special x-ray technique that combines a rotating x-ray device and a digital computer to create detailed cross-sectional images or slices of different organs and body parts. It has the unique ability to image a combination of soft tissue, bone and blood vessels. CT can be used in detecting cancer and in detection, diagnosis and treatment of heart disease, acute stroke and vascular disease. CT also can assist in several diagnostic procedures, including locating skull fractures, brain damage, detecting a blood clot or bleeding within the brain, detecting brain tumors and visually aiding in biopsies.

Cardiac Scoring is a new screening procedure using CT imaging in diagnosis and risk assessment for heart disease.

MRI **(Magnetic Resonance Imaging)**

MRI uses radio waves and a strong magnetic field to provide clear and detailed pictures of organs and tissues. The technique is valuable for the diagnosis of a broad range of conditions, including cancer, heart and vascular disease, stroke, joint and musculoskeletal disorders. MRI images of soft-tissue structures such as the heart and major vessels are more detailed than with other imaging methods. MRI can also detect abnormalities that may be obscured by bone tissue with other imaging methods.

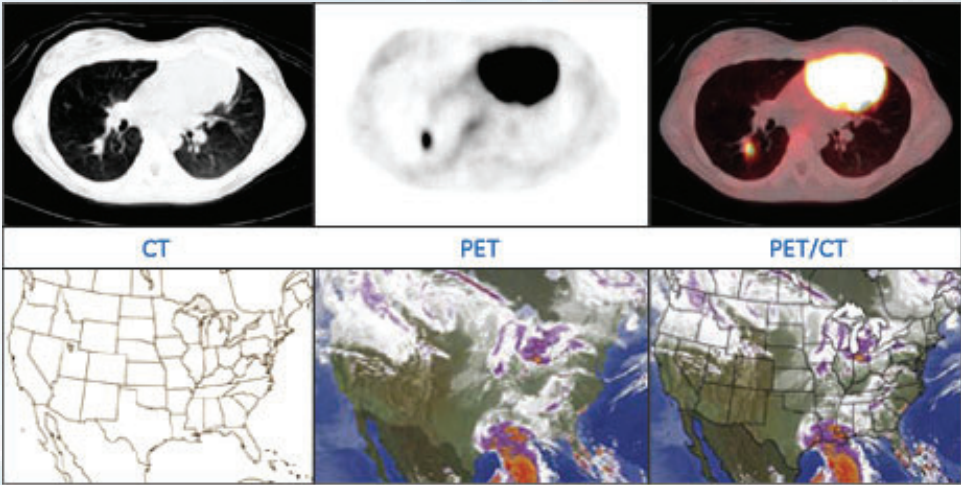
ULTRASOUND

Ultrasound imaging, also called ultrasound scanning or sonography produces images of the internal structure of the body through the use of high-frequency sound waves without involving radiation.

Ultrasound is based on the same principle as sonar used by bats and ships at sea. As the sound waves pass through the body, echoes are produced and displayed on a monitor that can be used to identify how far away an object is, how large it is and how uniform it is.



Because ultrasound images are in real time, they can show movement of internal tissues and organs, enabling the doctor to see bloodflow. It can help a doctor determine the source of pain, swelling or infection in many parts of the body. It is also popular with parents, allowing them to see the first picture of their unborn child.



Interventional Radiology

Interventional radiology is a medical specialty that uses image-guided, minimally invasive diagnostic and therapeutic techniques. Interventional radiological procedures often use small catheters (tubes) and other small instruments inserted through a very small incision into blood vessels and other pathways of the body, then guided to the problem area by medical imaging methods, such as fluoroscopy, CT or ultrasound. It is used to treat a variety of medical disorders without surgery. Interventional procedures are generally less costly and traumatic to a patient than traditional surgery and typically result in shorter recovery times.

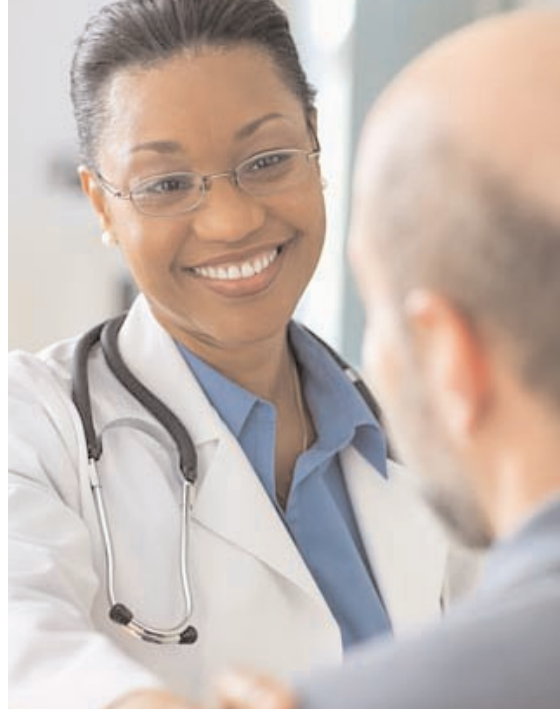
One common interventional procedure is angiography sometimes called an angiogram. Angiography is an x-ray of the arteries and veins for the diagnosis of blockages and other vascular problems. This procedure is performed by an interventional radiologist who inserts a thin tube into the artery or vein through a tiny puncture in the skin. A contrast agent (dye) is then injected to make the blood vessels visible on the x-ray.

MUGA

The MUGA scan (Multiple Gated Acquisition scan) is a noninvasive tool for assessing the function of the heart. A MUGA scan is performed by attaching a radioactive substance to the patient's red blood cells that are then injected back into the patient's bloodstream. The patient is then placed under a special gamma camera that can detect the low-level radiation being given off by the red cells producing a virtual movie of the beating heart.

NUCLEAR MEDICINE

Nuclear medicine is a radiology subspecialty that creates images based on the detection of energy emitted from a radioactive substance given to the patient. Nuclear Medicine can provide doctors with information regarding organ function using a very non-invasive procedure. It allows for the detection of disease prior to the manifestation of anatomical changes, often weeks or months before abnormalities would otherwise be detected.



An important nuclear medicine technique is positron emission tomography (PET), a diagnostic technology that produces 3-D images of the body's biological functions, unobtainable by other imaging techniques. PET is used to diagnose and stage many cancers, Alzheimer's Disease and other neurological diseases, screen for heart disease and evaluate damage from heart attacks. PET/CT Services will be available in 2007.

A bone scan is a nuclear medicine procedure that detects areas of increased or decreased bone metabolism, which may indicate bone injury or disease. The procedure is performed to determine if cancer has spread (metastasized) to the bones, or to detect infection, trauma, stress fractures or arthritis.



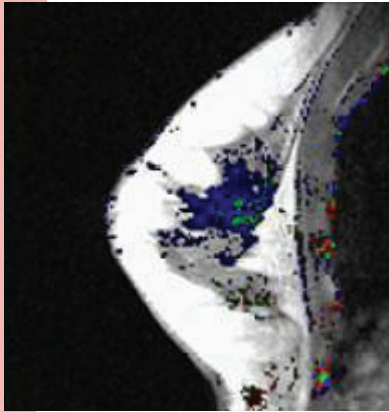
Breast Imaging

MAMMOGRAPHY

Mammography is a specific type of imaging that uses a low-dose x-ray system for examination of the breasts. Screening mammography can assist in the detection of disease before symptoms arise. In fact, mammography can show changes in the breast up to two years before a patient or doctor can feel them.

DIGITAL MAMMOGRAPHY

Digital mammography is now available at Roper St. Francis Healthcare. This new advancement in mammography can improve breast cancer detection in patients with dense breast tissue, patients less than 50 years old and pre- and peri-menopausal patients. The digital acquisition of images also allows for immediate review, computer manipulation and digital storage.



BREAST MRI OPTIMIZED WITH fTP ANALYSIS SOFTWARE

Breast MRI optimized with fTP (Full-Time-Point) pharmacokinetic analysis software is the next generation in MR contrast enhancement visualization. This new software system can be processed with coloration and intensity, showing the probability of cancer lesions. The sophisticated color image, as opposed to routine gray-scale MRI images, can more clearly reveal if cancer is present.

For more information visit our website.
To make an appointment

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