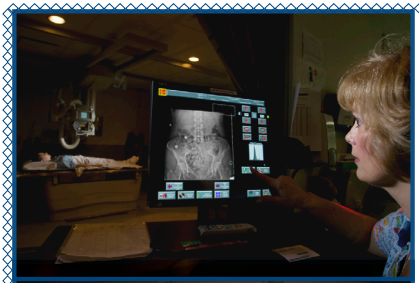
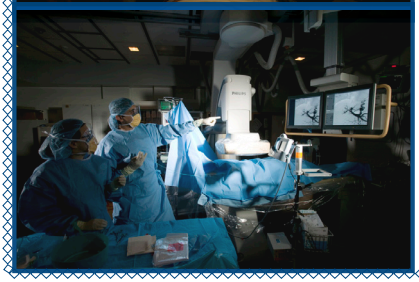




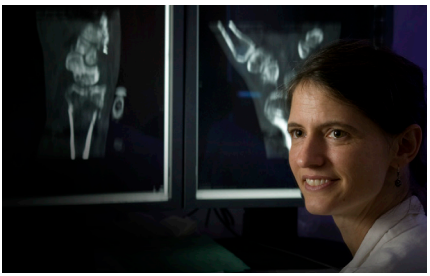
UNIVERSITY of ROCHESTER MEDICAL CENTER

Department of Imaging Sciences

The Department of Imaging Sciences provides a wide range of radiologic diagnostic and therapeutic imaging procedures with high quality and efficiency as a service to patients and their physicians. Over 380 employees help provide approximately 550,000 medical imaging exams each year. The demonstrations of quality clinical practice serve as a teaching model for medical students and resident physicians. The department's leadership role in the community and academic radiology is maintained through research and excellent clinical practice.

Department of Imaging Sciences
University of Rochester Medical Center
601 Elmwood Avenue, Box 648
Rochester, NY 14642
http://www.urmc.rochester.edu/imaging

RADIOLOGY is a medical specialty using a variety of imaging technologies to diagnose and in the appropriate setting treat diseases. These subspecialties are classified by anatomic location (neuro or pediatric imaging for instance) and in some cases method of imaging (nuclear imaging, interventional radiology (IR) for instance). The acquisition of medical images is done by radiographers and ultrasound technologists trained in a specific modality with the radiologist ultimately responsible.



Plain radiography was the major imaging modality available during the first 50 years of Radiology. Due to advances in computer technology and research, medical imaging has gone through a tremendous technical development. The driver for this has been computerization (CT, MR imaging) and the digitalization of imaging coupled with the emergence of the electronic patient record (EPR). The most tangible change being that imaging departments have now gone "filmless", meaning that an image is created digitally instead of using film, allowing for the image to be produced, stored, transported and interpreted in a much more efficient and thus provider and patient friendlier way.

Patient exams are interpreted and dictated by the radiologist at workstations throughout each section of the department where the radiologist has access to all the patient's radiological images, patient records, and other diagnostic tools. This web-based system ultimately allows the patient's physician to have immediate (on-line) access to exam results.

A Radiologist is a specialty physician trained in all areas of diagnostic radiology. Specialty certification is awarded by the American Board of Radiology (ABR).

During their residency, the radiology resident must pass a medical physics board exam covering the science and technology of ultrasound, CT, conventional (x-rays), nuclear medicine, and MR imaging.

After successful completion of their residency, the radiologist is eligible to take board examinations given by the ABR. Following completion of residency training, radiologists either begin their practice or enter into sub-specialty training programs known as fellowships. Examples of sub-specialty training in radiology include abdominal imaging, thoracic imaging, computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), musculoskeletal imaging, interventional radiology, neuroradiology, interventional neuroradiology, pediatric radiology, and women's imaging. Fellowship training programs in radiology are usually one year in length.

The Department of Imaging Sciences of the University of Rochester Medical Center (URMC) consists of the following

Divisions

Cardiothoracic Imaging

Multimodality imaging of thoracic and cardiac disease is a mainstay of any imaging department. In addition to the conventional chest radiographs, which made up over 40% of the workload of traditional radiology departments, the added value of CT, MR and US in diagnosing interstitial lung disease, coronary and valve abnormalities non-invasively, in addition to allowing for image-guided chest interventions has made this division even more central in the modern diagnostic process.

Musculoskeletal Imaging (MSK)

The MSK Radiologist is of particular value to the specialty of orthopedics and rheumatology. Musculoskeletal imaging includes radiographs, CT and MRI of the musculoskeletal system, arthrography and percutaneous bone biopsy. These imaging specialists are involved in a variety of procedures (MR spectroscopy and bone biopsies are examples).

Abdominal (GI/GU) Imaging

Gastrointestinal radiology (GI) involves performing barium examination of the esophagus, stomach, small bowel and colon. Additional GI imaging studies assist in evaluating the biliary system, pharyngeal swallowing, and plain film exams of the abdomen.

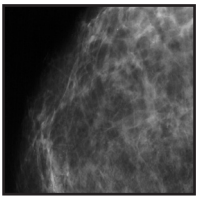
Genitourinary radiology (GU) evaluates the kidneys, ureters and bladder by CT, MR but also cystograms, nephrostograms and ureterograms. Hysterosalpinograms are performed to aid in evaluations of infertility.

Pediatric Imaging

Pediatric imaging is a subspecialty involving the imaging of all individuals under the age of 17 years. The Pediatric Radiology department, part of the Golisano Childrens Hospital, at Strong, offers all dimensions of imaging and interventional procedures applicable to these patients. There are many conditions which are seen only in infants. The specialty has to take in account the dynamics of a growing body, from pre-term infants to large adolescents, where the organs follow growth patterns and phases.

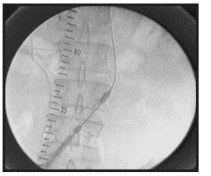
Mammography

The Women's Imaging Section provides all Screening and Diagnostic Breast Imaging services at Red Creek Drive (outpatient), Highland Hospital and Strong Memorial Hospital, all part of URMC. This includes screening mammography and diagnostic mammography, with digital radiography, MR and ultrasound. The full spectrum of interventional breast procedures are performed, such as stereotactic and ultrasound-guided biopsies, cyst aspirations, pre-operative wire localizations and ductography.



Vascular/Interventional Radiology (IR)

Interventional radiology (IR) is a subspecialty that performs minimally invasive procedures with catheters and stents, for instance for opening blocked blood vessels, draining excess fluids, relieving hypertension, removing foreign bodies, and managing gastrointestinal bleeding. IR procedures have less risk, less morbidity and mortality as compared to conventional (open) surgery. Radiographic images are used to guide these procedures, where the images provide road maps that allow the radiologist to reach the condition and relieve it without the need for invasive methods.

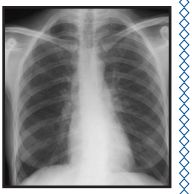


Neuroradiology

Neuroradiology is a subspecialty of radiology focusing on the diagnosis and characterization of abnormalities of the central nervous system, spine, brain, head and neck. Significant advances have been made in this field of minimally invasive therapy for the treatment of intracranial cerebral aneurysms; acute stroke therapy intervention; cerebral arteriovenous malformations; carotid cavernous sinus fistulas; head, neck, and spinal cord vascular lesions; and other complex cerebrovascular diseases.

Imaging Modalities

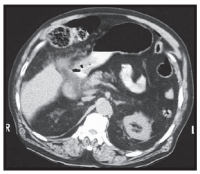
Conventional Radiography



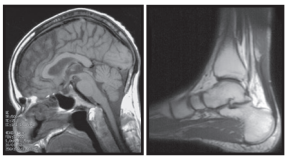
Conventional radiography, or x-ray exam, uses small amounts of radiation that are passed through a selected part of the body to produce an image. X-ray exams provide anatomic images of specific areas. Radiography is commonly used for evaluation of the chest, musculoskeletal system, and when used in conjunction with contrast agent, the gastrointestinal (GI) and genitourinary (GU) systems. Among the exams performed in the diagnostic area are upper and lower GI, IVP, chest and exams of the various bones in the body.

Computed Tomography

Computed tomography (CT or CAT) scans use conventional (ionizing) x-ray examination where a computer analyzes the density of the different tissues like bone, fat, air and soft tissues to produce detailed cross-sectional images in any plane desired. Further computer analysis allows for the 'lifting out' of the bones, or any other organs system desired.



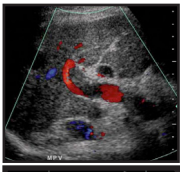
Magnetic Resonance Imaging

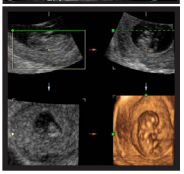


Magnetic resonance (MR) imaging creates similar images as CT without the use of ionizing radiation. Instead MR uses a magnetic field and radiowaves to produce detailed images of the body in cross-sectional slices. MR is superior in the evaluation of extent of disease, particularly in soft tissue structures like breast.

Ultrasound

Ultrasound uses the reflective properties of sonar, or sound waves, transmitted through the body rather than radiation to rapidly and safely visualize the structure and function of blood vessels, the male and female pelvis, abdominal systems, and breast tissue. It is also a safe and effective means of examining the developing fetus.



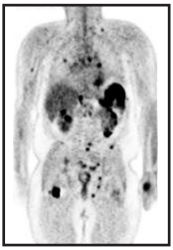


Nuclear Medicine

The subspecialty of Nuclear Medicine provides information about organ function by imaging the concentration of radioactive tracers within certain parts of the body. Radiologists specializing in Nuclear Medicine perform procedures to help diagnose disease such as hyperthyroidism (Grave's Disease), cardiac stress tests, osteomyelitis, abnormal function or metabolism of the gall bladder, liver, as well as the kidneys.

Positron Emission Tomography (PET)

Positron emission tomography, also called PET imaging or PET scan, is a diagnostic examination that involves the acquisition of physiologic images based on the detection of radiation from the emission of positrons. Positrons are tiny particles emitted from a radioactive substance administered to the patient. The subsequent images of the human body developed with this technique are used to evaluate a variety of diseases. They are used most often to detect cancer and to examine the effects of cancer therapy by characterizing biochemical changes in the cancer.



Department of Imaging Sciences

Administration

Chair
David L. Waldman, MD, PhD, FACR, FSIR

Vice Chair
Johan G. (Hans) Blickman, MD, PhD, FACR

Manager, Clinical Operations
Constance White, BSRT

Residency Director
Steven Meyers, MD, PhD, FACR

Section Directors

Abdominal Imaging
Patrick J. Fultz, MD

Cardiothoracic Imaging
Susan K. Hobbs, MD, PhD

Musculoskeletal Imaging
Francis A. Burgener, MD, Co-Director
Johnny U.V. Monu, MD, Co-Director

Neuroradiology
Michael J. Potchen, MD

Nuclear Medicine
Vaseem Chengazi, MD, PhD

Pediatric Imaging
Johan G. (Hans) Blickman, MD, PhD, FACR

Vascular/Interventional
David E. Lee, MD

Women's Imaging
Avice M. O'Connell, MD, FACR