

FACT SHEET

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Imaging Techniques Permit Precise Delivery of Therapy ***Interventional Radiologists Offer Nonsurgical Treatment of Disease by Combining Imaging Expertise with Advanced Procedural Skills***

Interventional radiologists combine their unique skills to offer treatment for a wide variety of conditions. By combining diagnostic imaging expertise with advanced procedural skills, they offer image-guided procedures that often replace open surgery, and offer less risk, less pain and less recovery time. Training to become an interventional radiologist requires completion of fellowship training that has been accredited by the American Board of Medical Specialties. This ensures that sufficient experience is gained in patient care, procedural competence and the safe use of imaging techniques, including radiation safety, radiation physics, and the biological effects of imaging.

Image-guided procedures utilize a variety of imaging methods that include:

Angiography – Real-time X-ray images of arteries or veins following injection of contrast (a liquid that shows up on the images during the test) delivered through a thin catheter into the blood vessel. This shows the inside of the blood vessel and is used to locate blockages and other blood vessel problems. This is the primary method used to guide many procedures that interventional radiologists perform in the circulatory system, such as angioplasty, stent placement, embolization (blocking of blood vessels), thrombolytic therapy (dissolution of blood clots) and targeted delivery of chemotherapy.

Computed Tomographic (CT) Angiography – A CT scan is an X-ray imaging test that provides detailed cross sections of the body’s internal tissues. Contrast is given intravenously during the study to make the arteries and veins very prominent. The series of cross sections obtained during CT scanning can be used to create a 3-dimensional picture of the blood vessels called a CT angiogram (CTA), plus it can often replace the need for traditional angiography to determine if a patient may benefit from angioplasty or stent placement for artery and vein occlusions.

Magnetic Resonance Angiography (MRA) – MRA uses radio waves delivered while the patient is placed in a magnetic field to create images of arteries and veins. MRA is a particularly powerful vascular imaging modality in that it is extremely safe, is noninvasive, does not require radiation and can be used safely in patients who have impaired kidney function. However, it is only rarely used in “real time” to guide therapy.

Ultrasound – To obtain an ultrasound image, inaudible sound waves are emitted from a probe and reflected back to the probe by the internal organs. The reflected sound waves are used to build a two-dimensional image similar to the use of SONAR by submarines. Ultrasound lets the physician see inside the body without using radiation, and is commonly used as the first method to evaluate for vascular blockages or aneurysms. It also provides a robust guidance tool for many interventional radiology procedures such as biopsies, abscess drainages and tumor ablation.