

10 Questions To Ask Your MRI Provider

MRI is one of the safest and most descriptive diagnostic tools ever invented. Unlike CT or conventional X-rays, there is no carcinogenic (ionizing) radiation involved. There are no known biological risks associated with exposure to magnetic fields of the strength used in clinical MRI's. And though there have been compatibility issues with medical devices, such as pacemakers, the clinical safety of an MRI scan has always been quite high, and newer devices are even improving it.

But MRI facilities have been springing up for a decade across America. In addition to growing in number, many newer MRI's are twice as powerful as preceding models. Both the increased number and increased strength is of concern because, as good as clinical safety is, facility safety still lags behind.

In 2001 a young boy was killed in a tragic MRI accident when a steel oxygen cylinder was brought into the magnet room while the boy was being scanned. The magnet pulled the steel cylinder from the doctor's hands and magnetically drew it across the room, into the center of the magnetic tunnel (bore) where it struck and killed the boy. This death was not a result of a clinical failing, but rather a failure of both facility design and operational protocols.

It should be stressed that MRI is an exceptionally safe tool, when used properly. But how do you, the patient, know if the hospital or imaging center where you or a loved one are to receive an MRI exam is designed to be safe?

Below are ten questions that every patient should ask their MRI center prior to receiving an MRI.

1. Is your facility and are the technologist(s) who will be performing the scans ACR accredited for MRI?

The American College of Radiology (ACR) has an accreditation process for both MRI staff and equipment. The technologist certification means that the person running the MRI machine has been extensively trained. The ACR facility certification means that the MRI machine produces high-quality diagnostic images. While neither of these certifications directly apply to issues of facility safety, they are indications that an MRI center is serious about their qualifications.

http://www.acr.org/s_acr/sec.asp?CID=675&DID=14339

2. Does your MRI facility comply with the ACR's 4-zone safety and screening protocols?

The ACR 4-zone principal states that MRI facilities should screen patients for both clinical and physical risks before they're brought to the magnet room. Zone I is the general public out in the world. Zone II is inside the MRI facility, where you undergo the screening processes to make certain that there are no clinical risks (for example, to make certain that you don't have certain devices on or within you, such as some types of aneurism clips, that could be harmful if scanned) and no physical risks (such as carrying a

pocket-knife) before you're permitted to get close to the magnet room. There should be a locked door between Zone II and Zone III, which is the area around the magnet room. And even though you're not in the magnet room yet, there is still the potential for the magnetic field to interact with anything implanted within you or that you may be carrying with you. Typically the control areas and patient holding or sedation areas would be considered Zone III. Zone IV is the magnet room itself, where the physical risks are at their greatest.

A facility that does not provide these sequential levels of screening and restrict the access to Zones III and IV is not providing the safest MRI facility.

http://www.acr.org/s_acr/bin.asp?TrackID=&SID=1&DID=12183&CID=1848&VID=2&DOC=File.PDF

3. Is there an MR-Safe fire extinguisher in the MRI area?

Fires in MRI facilities are quite rare, but not unprecedented. If there was a fire, even a smoking electrical outlet in the MRI room, you would want to know that staff wouldn't rush in with a steel fire extinguisher that could get drawn into the magnet. Because MRI's will attract anything made with iron or steel, there is a special designation for things that are made to be used near an MRI. This designation is "MR-Safe." And while an MR-Safe fire extinguisher alone doesn't guarantee a safe facility, it's usually another good indicator that the provider takes facility safety seriously.

https://www.ansul.com/Products/nonmagnetic_ext/non_magnetic.asp

4. Are the wheelchairs, beds, IV poles in the suite MRI-safe?

Far more frequently than fire extinguishers, non-safe chairs, wheelchairs, IV poles and other pieces of incidental equipment are brought into the magnet room. When this happens, frequently the objects are drawn to the MRI and get stuck to the side or center of the magnet. The MRI magnets are so strong, that these attracted objects can accelerate to over 30 miles per hour. They can be caught so tightly in the grip of the magnetic field that it can take teams of people to pry them off. It is for this reason that it is vital that anything in the MRI suite that could be brought into the magnet room should be MR-Safe.

http://www.MRI-Planning.com/vendor_links.html
<http://www.magmedix.com/>
<http://www.xraymdm.com/mriaccessories.htm>
<http://www.canamglobal.com/mri/acessor2.html>
<http://www.mriequip.com/>

5. What happens if a person develops difficulty breathing while in the MRI?

For patients with known respiratory problems, many MRI facilities are equipped with piped-in oxygen and you may be provided with oxygen during a scan. However, anytime a patient receiving an MRI needs medical attention the very first thing that should happen is that the patient is removed from the MRI room. Because of the risk of bringing non-safe objects into the magnet room, it is vital that the patient be brought outside to receive any treatment. This is true for any medical concern.

6. What do you do to prevent a person from bringing objects into the magnet room that the magnet could 'grab'?

Every facility must screen patients, both for their clinical history and whatever may be on their person. Objects such as hearing aids, glasses, steel-toed shoes, orthopedic braces, cell phones, pagers, pocket knives, wrenches, clip boards, keys and many others have all been attracted by the magnet. It is for this reason that patients should minimally empty their pockets, remove jewelry and check for any metal parts of shoes or clothing. The safest solution is for patients to be required to change into a hospital gown or scrubs to minimize the risk of unintentionally bringing metal objects into the magnet room. Many facilities are also using ferrous-only detectors, which unlike standard metal detectors, only alarm of iron-containing metals that are potential threats in the MRI to help screen the people and objects entering the MRI suite.

<http://www.koppdevelopment.com/>
<http://www.mednovus.com/>
http://www.lindgrenrf.com/med_ferromagnetic.htm

7. Where do you store metal objects (oxygen cylinders, walkers, wheelchairs, etc...) that wouldn't be safe in the MRI suite which patients might bring with them when getting an MRI?

Even if the MRI facility is vigilant about screening all of their own equipment to make sure that it's MR-Safe, patients and their family bring their own assortment of non-safe devices with them to the MRI facility. It is just as important that these items are identified and 'quarantined' from the area near the MRI as it is that the facility's own non-safe equipment is segregated. Facilities should have places for a patient's personal effects and belongings away from the magnet room.

8. How can you assure that nobody could enter the magnet room while I'm being scanned?

The person running the MRI scanner (the technologist) should have a clear view of the magnet room door from the control console so that they can see if anyone is approaching the room while you're in it. Unless there's only a single scanner and a technologist who personally escorts each patient through a locked entry to Zone III, it is vital that they can visualize the door to the magnet room.

While the technologist may need to enter the room during your exam to check on you or the equipment, other personnel should not enter the room while you are inside. This includes loved ones who may have accompanied you to the MRI center.

9. Are there staff in the suite at the time of my exam who aren't trained in MRI safety?

Many, if not most, facilities depend upon staff that may have little, if any, MRI safety training. This can be janitorial staff, transport personnel, administrative staff, and even doctors and nurses. It is important that imaging facilities carefully restrict everyone who is not intimately familiar with MRI safety from Zone III and Zone IV to prevent unsafe objects from being brought near the magnet.

10. Are there other imaging devices (CT or PET scanners, ultrasound or X-ray) right next to the MRI?

Even if a facility has every MRI patient undergo the most rigorous screening possible, if unscreened CT, x-ray or PET patients are allowed into the Zone III area (shared between MRI and the other scanners), then there is a gaping hole in the safety protocols. What if a CT patient, an electrician for example, who is waiting in a shared waiting area, wanders into the MRI room. The magnet could grab anything ferrous that they have with them, a wire-cutter in this hypothetical, and 'suck' it into the magnet. Any person in the room at the time would be at risk from an airborne piece of steel traveling at speeds of 30 miles per hour.

Other imaging services can be safely located near MRI, but it can be very dangerous to mix other, unscreened, patients with MRI patients who have undergone screening or to have the unscreened patients in the immediate vicinity of the MRI.

Always follow the instructions from your physician and the staff of the hospital or imaging center with regard to your medical history and preparations for the MRI exam.

It worth repeating that MRI's are extraordinarily safe procedures and operational accidents that injure patients are very rare. Nobody prescribed an MRI by their doctor should avoid the scan because of fears of safety.

The above checklist is designed to help assure that the facility at which you receive your scan is using the appropriate level of operational safety to protect you, other patients and staff. Your safety requires your participation and observation. In addition to the facility safety issues above, make sure you pay close attention to the screening and consent forms. If you feel that the hospital or imaging facility you've gone to hasn't adequately addressed the above safety issues, consider alternative sites to get your scan. Do not skip your prescribed exam.