

UT Southwestern Environmental Health and Safety Policy Library -- Policy

MAGNETIC RESONANCE (MR) SAFETY POLICY

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Sponsoring Office: Environmental Health and Safety

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POLICY STATEMENT

This document describes the access, training and reporting requirements applicable to all UT Southwestern MR areas. MR hazards are present in both clinical and research settings. This policy is applicable to all UT Southwestern employees, contractors and visitors when entering areas that have MR associated hazards.

RATIONALE

To provide a safe work environment in areas containing or that has associated magnetic resonance (MR) hazards. The American College of Radiology White Paper entitled MR Safe Practices (2007) was utilized as a guideline only for establishing these MR safety measures.

SCOPE

All facilities within UT Southwestern that utilize MR devices.

WEBSITE ADDRESS FOR THIS POLICY

<http://www.utsouthwestern.edu/utsw/cda/dept145569/files/528467.html>

RELATED STATUTES, POLICIES, REQUIREMENTS OR STANDARDS

UT Southwestern Policies & Standards	Other Policies & Standards
None	ACR White Paper

CONTACTS

If you have any questions about UT System Administration Policy INT MR001 Magnetic Resonance (MR) Safety Policy, contact the following office(s):

Subject	Office Name	Telephone Number
Operator and Patient Safety	Supervisor Imaging Services	214-645-1527
Magnetic Resonance (MR) Safety Policy	Environmental Health and Safety	214-648-2250

DEFINITIONS

MR Zones

Zone I

Any area that is located outside the MR environment. This includes MR waiting rooms and check in areas.

Zone II

Interface between Zone I and II

Zone III

MR control room or any area adjacent to Zone IV.

Zone IV

The MR scanner room.

Non-MR Personnel

Have no formal training process, for example: patients or visitors

MR Level I Personnel

Have minimum training in MR safety procedures.

MR Level II Personnel

Those employees who have been more extensively trained and educated in the broader aspects of MR safety issues, including, for example, issues related to the potential for thermal loading or burns and direct neuromuscular excitation from rapidly changing gradients. Typically Level II trained personnel are operators of MR equipment.

Ferromagnetic

Materials which are attracted by a magnet. A few materials, for example, iron, cobalt, nickel, and alloys of these metals, have especially strong attraction properties.

Non-ferromagnetic

Materials which are not attracted by a magnet. Examples are gold, platinum, tin, copper
.....

RESPONSIBILITIES

Imaging Services

- Creating procedures for operator and patient safety.

Environmental Health and Safety

- Provide training and Monitoring access.
- Marking gauss lines.
- Reviewing screening forms for the staff.
- Audits of MR facilities

PROCEDURES

I. Implementation/Enforcement

Environmental Health and Safety performs semi-annual audits of the MR safety program and staff training. If staff training is out of date, access to the MR areas will be removed. Any non-compliance in regards to safety that are not addressed, are reported to Radiation Safety Committee on a quarterly basis.

II. Operator and Patient Safety

Each clinical and research site will develop and enforce operator and patient safety procedures that will be kept on-site and available to staff.

III. Access Requirements

A. Non-MR personnel

Must be accompanied by or under the immediate supervision of a Level II trained employee and in visual or verbal contact for the entirety of their duration within Zone III or Zone IV restricted regions. Non-MR personnel may be within Zone III without visual contact if in the changing room or restroom as long as verbal contact is maintained.

B. MR Level I personnel

MR level I personnel are permitted unaccompanied access throughout Zones I, II, and III; they can enter into Zone IV with clearance from a MR level II employee. MR level I personnel can escort non-MR personnel through Zones I, II, and III but not into Zone IV.

C. MR Level II personnel

MR level II personnel have the ability to move throughout any Zone in the MR area and can escort non-MR personnel throughout any Zone in the MR area.

D. VIP/Visitors

No visitor or VIP is allowed to tour a MR area without an escort from a MR level I employee. Access into a Zone IV area cannot be granted without the presences of a MR level II employee.

E. Training

1. MR level I

Training is provided on-line. Any personnel that will be working in or near, or has a potential to be in or near a MR area must have at a minimum MR level I safety training. The department manager or designee must contact EH&S to have training assigned to their staff.

Potential staff that require MR level I safety training include but is not limited to the following:

Campus wide

Housekeeping
Physical plant
Police
EH&S

Hospital Staff

MR employees
Nursing staff – taking patients to MR
Transport team
Code team
Radiology employees or employees that work in a department with a MR scanner

2. MR level II

Each clinical and research site will either verify competency or train MR level II personnel.

F. Restriction of Ferromagnetic items

Ferromagnetic items have a potential to become a projectile if taken into the Zone IV area. A projectile is an object sent through the air by the application of some force. In the MR environment, the projectile is any ferromagnetic item and the force is the magnetic field.

Each MR area must provide a “safe area” for ferromagnetic objects that are brought into the MR zones. These items include but are not limited to: wheelchairs, oxygen tanks, stretchers.... These areas should be locked, for example; behind a door (closet) or with a chain.

1. Police

A place must be provided for the police to secure their sidearm. This location must have a key that the officer can keep on their person in case entry into Zone IV is required. The “safe box” can be a locker that is used for patient’s personnel items; as long as it can be locked.

2. Physical Plant

Will not enter into Zone IV without clearance from a MR level II employee. The MR facility will either provide a ferromagnetic detector or a 1000G magnet to check the equipment needed in Zone IV.

3. Housekeeping

Will not clean in the Zone IV area. MR level II personnel will bring waste receptacles and linen receptacles into the Zone III area for the housekeeping staff. In the case that housekeeping must enter the Zone IV area, entry is only permitted after clearance from a MR level II employee. The MR facility will either provide a ferromagnetic detector or a 1000G magnet to check the equipment needed in Zone IV.

G. Marking of Gauss line

If physical plant or housekeeping must enter Zone IV with ferromagnetic items that are not safe within the Zone IV five gauss line, the MR level II personnel must ensure visual demarcation of the five gauss line. A MR level II employee must stay within visual and verbal contact with the MR level I employee the entire time they are in the Zone IV area with the ferromagnetic item.

1. Research

A survey of the room showing gauss measurements will be posted at the entrance of the room. The 5-Gauss line will be marked visually in areas with tile floors.

2. Clinical

A survey of the MR room showing gauss measurements will be posted at the control panel within sight of the MR Level II employee. If MR level I personnel must work in the room the 5-Gauss line must be marked visually.

H. Screening forms

1. All MR level I and MR level II personnel will complete a screening form on a yearly basis. Access to MR areas will be determined from the screening form and passing the on-line course exam with 80%.
2. If MR level I and MR level II personnel have any changes to their status during the year (surgeries, procedures, accidents that involve metal or ferromagnetic devices), Environmental Health and Safety must be notified and a new screening form must be provided.
3. Completed employee screening forms will be maintained in Environmental Health and Safety.

4. Employees deemed not safe to enter into a Zone IV area based on their screening form will be issued a card stating restricted entrance and their immediate supervisor will be notified.

I. Incident reports

1. Involving an employee or patient
 - a) Standard procedures for reporting an injury will be followed. A copy must be forwarded to EH&S, mail code 9053, fax 214-648-3997, phone 214-648-2250. Incidents that do not require reporting to Occupational Health shall be reported to the EH&S office.
2. Not involving an employee or patient – Damage to the equipment only
 - a) MR incident forms shall be completed and forwarded to EH&S, mail code 9053, fax 214-645-8337, phone 214-648-2250.

IV. Audits

Audits will be performed by Environmental Health and Safety at least twice a year. Audit results will be sent to the manager and director of the facility. Deficiencies will be addressed within 30 days and corrected within 90 days of the audit results.

Lenel access for MR areas will be reviewed every six months. Any person with access that does not have proof of training will have access removed until training is complete.

Training requirements for University Hospital staff will be based on the employee's job code. Job codes will be reviewed on an annual basis by Imaging Services supervisors.

FORMS AND TOOLS/ONLINE PROCESSES

[MRI Incident Form](#)

[Online MRI Safety Training Instructions](#)