

## MAGNETIC RESONANCE SAFETY

### 1. SUMMARY OF MAJOR CHANGES: Major changes are as follows:

a. New roles and responsibilities included for the:

- (1) Assistant Under Secretary for Health for Clinical Services.
- (2) Executive Director, Diagnostic Services.
- (3) Executive Director, National Radiology Program.
- (4) Assistant Director, National Radiology Program.
- (5) Veteran Integrated Service Network (VISN) Diagnostics Integrated Clinical Communities (ICCs) Lead.
- (6) Department of Veterans Affairs (VA) medical facility Chief of Staff/Associate Director for Patient Care Services.
- (7) VA medical facility Magnetic Resonance (MR) Safety Expert.
- (8) VA medical facility Patient Safety Manager.

b. Updated responsibilities included for the:

- (1) VISN Director.
- (2) VA medical facility Director.
- (3) VA medical facility Radiology Service Chief.
- (4) VA medical facility MR Director.
- (5) VA medical facility MR Safety Officer (MRSO).
- (6) VA medical facility Level 1 MR personnel.
- (7) VA medical facility Level 2 MR personnel.
- (8) Chair of the VA medical facility MR Safety Committee.
- (9) VA medical facility ordering health care provider.

### 2. RELATED ISSUES: None.

(DATE)

VHA DIRECTIVE 1105.05

**3. POLICY OWNER:** The Executive Director, National Radiology Program, Diagnostic Services (11DIAG1) is responsible for the contents of this directive. Questions may be referred to [VHARadiologyProgramOffice@va.gov](mailto:VHARadiologyProgramOffice@va.gov).

**4. RESCISSIONS:** VHA Directive 1105.05, Magnetic Resonance (MR) Safety, dated May 29, 2018, is rescinded.

**5. RECERTIFICATION:** This Veterans Health Administration (VHA) directive is scheduled for recertification on or before the last working day of April 2030. This VHA directive will continue to serve as national VHA policy until it is recertified or rescinded.

**6. LOCAL DOCUMENT REQUIREMENT:** There are no local document creation requirements in this directive.

**7. IMPLEMENTATION SCHEDULE:** All content of this directive is effective upon publication except the competency certification for MRSOs, which must be completed within 6 months from publication. See related responsibilities at paragraph 2.i.(3) and paragraph 2.p.(2).

**BY DIRECTION OF THE OFFICE OF THE  
UNDER SECRETARY FOR HEALTH:**

/s/ Erica Scavella, M.D., FACP, FACHE  
Assistant Under Secretary for Health  
for Clinical Services/CMO

**NOTE:** *All references herein to VA and VHA documents incorporate by reference subsequent VA and VHA documents on the same or similar subject matter.*

**DISTRIBUTION:** Emailed to the VHA Publications Distribution List on April 24, 2025.

**CONTENTS**

**MAGENTIC RESONANCE SAFETY**

1. POLICY ..... 1

2. RESPONSIBILITIES ..... 1

3. TRAINING ..... 12

4. BACKGROUND..... 12

5. DEFINITIONS ..... 13

6. RECORDS MANAGEMENT..... 14

7. REFERENCES..... 14

## MAGNETIC RESONANCE SAFETY

### 1. POLICY

It is Veterans Health Administration (VHA) policy to ensure continuous patient, staff, trainee, and visitor safety in all clinical and research fixed and mobile Magnetic Resonance Imaging (MRI) installations. **AUTHORITY:** 38 U.S.C. § 7301(b).

### 2. RESPONSIBILITIES

a. **Under Secretary for Health.** The Under Secretary for Health is responsible for ensuring overall VHA compliance with this directive.

b. **Chief Operating Officer.** The Chief Operating Officer is responsible for:

(1) Communicating the contents of this directive to each of the Veteran Integrated Service Network (VISNs).

(2) Assisting VISN Directors to resolve implementation and compliance challenges in all Department of Veterans Affairs (VA) medical facilities within that VISN.

(3) Providing oversight of VISNs to ensure the effectiveness of and compliance with this directive. This includes ensuring that each VISN Director has the resources required to support the fulfillment of the terms of this directive in all the VA medical facilities within that VISN.

c. **Assistant Under Secretary for Health for Clinical Services/Chief Medical Officer.** The Assistant Under Secretary for Health for Clinical Services/Chief Medical Officer (CMO) is responsible for:

(1) Supporting the Office of Diagnostics Services with implementation and oversight of this directive.

(2) Supporting the development of mitigation or corrective actions to address noncompliance with this directive.

d. **Executive Director, Diagnostic Services.** The Executive Director, Diagnostic Services is responsible for:

(1) Providing oversight and support of national issues related to MRI safety, including policy, procedures, and education across VHA.

(2) Overseeing Radiology MRI Services within VA in collaboration with the Executive Director, National Radiology Program.

e. **Executive Director, National Radiology Program.** The Executive Director, National Radiology Program is responsible for:

(1) Developing and supporting national VHA policy, procedures, and education for MRI Safety.

(2) Assisting the VISN Diagnostics Integrated Clinical Communities (ICCs) Lead to communicate policy changes with respect to MRI safety to VA medical facilities.

(3) Working with the Executive Director, Diagnostic Services to oversee Radiology MRI Services within VHA.

f. **Assistant Director, National Radiology Program.** The Assistant Director, National Radiology Program is responsible for:

(1) Assisting the Executive Director, National Radiology Program with oversight of the implementation of this directive.

(2) Advising the Executive Director, National Radiology Program on matters regarding MRI safety, education, policy, and procedures.

g. **Veteran Integrated Service Network Director.** The VISN Director is responsible for:

(1) Ensuring that all VA medical facilities within the VISN comply with this directive and informing the Assistant Under Secretary for Health for Clinical Services/CMO and the Chief Operating Officer when barriers to compliance are identified.

(2) Overseeing corrective actions to address noncompliance at the VISN and VA medical facilities within the VISN.

(3) Ensuring that proposals for restructuring, reduction, or augmentation of MRI services comply with this directive and VHA Directive 1043, Restructuring of VHA Clinical Programs, dated November 2, 2016.

(4) Ensuring all Magnetic Resonance (MR)/MRI operations within the VISN meet the requirements in this directive.

(5) Ensuring that reports of noncompliance are received by the VISN Chief Medical Officer (CMO) or designees (e.g., Deputy CMO, VISN Imaging ICC Lead) for review, and that appropriate action as needed is taken and tracked until resolution.

h. **Veteran Integrated Service Network Chief Medical Officer.** The VISN CMO is responsible for reviewing and taking appropriate action on reports of noncompliance with this directive. **NOTE:** *Reports of noncompliance are submitted to the VISN CMO from the VISN Director.*

i. **Veteran Integrated Service Network Integrated Clinical Communities Lead.** The VISN Diagnostics ICCs Lead is responsible for working with the Executive Director, National Radiology Program to communicate policy changes with respect to MRI safety to VA medical facilities.

j. **VA Medical Facility Director.** The VA medical facility Director is responsible for:

(1) Ensuring compliance with this directive in all MRI installations, both fixed and mobile at the VA medical facility.

(2) Ensuring that minutes of the VA medical facility MR Safety Committee are submitted to the appropriate VA medical facility-level quality committee (e.g., Medical Executive Board), at least quarterly.

(3) Ensuring that new imaging suites of MRI machines are constructed in compliance with current VA design guide parameters in accordance with the Office of Construction & Facilities Management [Imaging Services Design Guide \(rev. 2022\)](#).

**NOTE:** For existing MRI suites not in compliance with current VA design guide parameters, the VA medical facility MRSO must collaborate with the MR Safety Committee to conduct an annual risk assessment and complete a mitigation plan. For details on the elements of the risk assessment, see SOP 1105.05-03: Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public. The VA medical facility Patient Safety Manager may assist the MRSO and MR Safety Committee to conduct the annual risk assessment when requested by the VA medical facility MRSO or VA medical facility MR Safety Committee.

(4) Identifying the positions within the VA medical facility that frequent MR on an ongoing and consistent basis and ensuring that these individuals complete the annual MRI Level 1 personal safety training and personal screening. Examples include: ward/unit nurses and physicians who monitor patients or respond to emergencies, any personnel who will assist in lifting/moving patients, cleaning and environmental staff working in MR, as well as police, fire safety officers, and other safety officers. **NOTE:** See training information in paragraph 3 below.

(5) Designating a MR Safety Expert (MRSE) at the VA medical facility. **NOTE:** Depending on the VA medical facility structure, this may also be done by the VA medical facility Radiology Service Chief.

(6) Ensuring that reports of noncompliance with this directive are escalated to the VISN Director. **NOTE:** The VISN Director must submit reports of noncompliance to the VISN CMO for review and corrective action as outlined in paragraph 2.g.

(7) Ensuring that MRI safety zone signage is reviewed weekly.

(8) Designating Level 1 MR support staff personnel (i.e., Environmental Management Services (EMS), police, fire safety) at the VA medical facility, providing an updated list of designated Level 1 personnel to the Chair, MR Safety Committee at least annually, and ensuring completion of annual safety training.

k. **VA Medical Facility Chief of Staff/Associate Director for Patient Care Services.** The VA medical facility Chief of Staff/Associate Director for Patient Care Services is responsible for:

(1) Ensuring first level screening by VA medical facility ordering health care providers is completed at point of ordering.

(2) Designating Level 1 MR medical service personnel and health professions trainees at the VA medical facility, providing an updated list of designated Level 1 personnel to the Chair, MR Safety Committee at least annually, and ensuring completion of annual safety training.

(3) Ensuring appropriate level of supervision of health trainees in accordance with VHA Directive 1400.01, Supervision of Physician, Dental, Optometry, Chiropractic and Podiatry Residents, dated November 7, 2019, and VHA Handbook 1400.04(1), Supervision of Associated Health Trainees, dated March 19, 2015. **NOTE:** See *VHA Handbook 1400.04(1)* for additional information on health trainees.

(4) Providing oversight of the VA medical facility Radiology Service Chief to ensure compliance with this directive.

I. **VA Medical Facility Radiology Service Chief.** The VA medical facility Radiology Service Chief is responsible for:

(1) Serving as or designating a VA medical facility MR Director (MRMD). **NOTE:** See *paragraph 2.o. for responsibilities pertaining to the VA medical facility MRMD.*

(2) Designating at least one VA medical facility MR Safety Officer (MRSO) to oversee the safety operations of each facility's MRI installation.

(3) Completing an initial and annual certification of competency for each VA medical facility-designated MRSO in accordance with the MRSO competency evaluation form on the [Radiology SharePoint site](#). **NOTE:** *This is an internal VA website that is not available to the public.*

(4) Designating Level 2 MRI Personnel and associated training requirements and review on an annual basis. **NOTE:** *Delegation can be given to the MRMD or MRSO.*

(5) Ensuring second level screening is performed at the point of care by VA medical facility MRI staff or VA medical facility health care providers reporting to the VA medical facility Radiology Service Chief.

(6) Designating a MRSE at the VA medical facility. **NOTE:** *Depending on the VA medical facility structure, this may also be done by the VA medical facility Director.*

(7) Establishing a VA medical facility MR Safety Committee and serving as, or appointing, a Chair of the Committee. **NOTE:** See *paragraph 2.m. for responsibilities pertaining to the Chair of the VA medical facility MR Safety Committee.*

(8) Ensuring that VA medical facility MR Safety Committee minutes, incident reviews, and risk assessments are reported to the VA medical facility Director.

(9) Establishing processes or procedures for safe operation in the MR area. These processes or procedures must address devices that are MR Conditional, MR Safe, and MR Unsafe, as well as patient preparation, and appropriate staff and patient clothing and screening for those who enter Zones III and IV. These may include, but are not limited to:

- (a) Safety screening of patients/personnel requiring access to Zones III and IV.
- (b) Continuous monitoring of patients in Zone IV.
- (c) Safe administration of contrast media to MRI patients.

(d) Sedation/anesthesia of MRI patients (if available). **NOTE:** See VHA Directive 1073(1), *Moderate Sedation for Non-Anesthesia Providers*, dated December 20, 2022, for additional information on sedation. For more information on Patient Monitoring during Sedation in MRI, please see Standard Operating Procedure (SOP) 1105.05-02 – Patient Monitoring located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.

(e) Procedures for conducting annual drills for emergencies in the MR area (e.g., cardiac arrest, a contrast reaction, a patient pinned in the magnet by a metal object, a fire, quench, disruptive patient.)

(f) Procedures for access to MRI suite during weekends, holidays, evenings, and nights (WHEN) hours by non-MRI staff.

(g) Procedures for imaging of patients with pacemakers and MR Conditional and MR non-conditional devices.

(h) Establishing processes or procedures to address visitors and service animals in Zones III and IV.

(i) Establishing procedures for the cleaning of Zone IV.

(10) Ensuring that all staff requiring Level 2 training has completed the MR Safety Screening questionnaire within the past year.

(11) Ensuring that the individuals within the Radiology Service who are designated by the VA medical facility Radiology Service Chief as Level 1 and Level 2 MR personnel have the appropriate competencies if applicable for their jobs in the MR environment.

(12) Ensuring that all MRI technologist staff complete vendor specific safety training upon installation of new equipment or within 3 months of new employment orientation.

(13) Ensuring coordination between the VA medical facility Chief Biomedical Engineer, vendor, and physicist (usually a contracted board certified diagnostic medical physicist who may or may not be the VA medical facility MRSE) on all testing, maintenance, and repairs that impact patient and employee safety.

(14) Obtaining MR Safe or Conditional monitoring and transport devices for patient care to support the expected scope of procedures and acuity level of patients.

m. **Chair, VA Medical Facility MR Safety Committee.** The Chair of the VA medical facility MR Safety Committee is responsible for:

(1) Appointing, at a minimum, the following individuals to participate as members of the MR Safety Committee:

- (a) VA medical facility MR Safety Officer;
- (b) VA medical facility MR Safety Expert;
- (c) VA medical facility Radiologist;
- (d) VA medical facility MR Technologist;
- (e) VA medical facility Nurse;
- (f) VA medical facility Radiology QA Technologist;
- (g) VA medical facility Radiology Administrative Officer;
- (h) VA medical facility Radiology Chief Technologist;
- (i) VA medical facility Chief Biomedical Engineer or designee;
- (j) VA medical facility Staff Physician (non-Radiologist); and
- (k) VA medical facility Patient Safety Manager.

(2) Holding meetings at least quarterly, and as appropriate for a close call or adverse event. **NOTE:** *Minutes of meetings must be prepared for the reporting to VA medical facility Director through existing VA medical facility committee structures. For more information about what constitutes close calls or adverse events, see VHA Directive 1050.01(1), VHA Quality and Patient Safety Programs, dated March 24, 2023.*

(3) Ensuring the VA medical facility MR Safety Committee collaborates with the VA medical facility MRSO to conduct an annual risk assessment for existing MRI suites. For details on the elements of the risk assessment, see SOP 1105.05-03: Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment. **NOTE:** *The annual risk assessment determines if MRI suites are in compliance with current VA design guide parameters and safety guidelines. Mitigation plans are required to address areas of non-compliance. The VA medical facility Patient Safety Manager may assist the MRSO and MR Safety Committee to conduct the annual risk assessment when requested by the VA medical facility MRSO or VA medical facility MR Safety Committee.*

(4) Approving locally developed training for Level 2 MR Safety training as appropriate. See paragraph 3.b. for additional details.

n. **VA Medical Facility Chief Biomedical Engineer.** The VA medical facility Chief Biomedical Engineer is responsible for:

(1) Ensuring coordination between the VA medical facility Radiology Service Chief, vendor, and physicist (usually a contracted board certified diagnostic medical physicist who may or may not be the VA medical facility MRSE) on all testing, maintenance, and repairs that impact patient and employee safety.

(2) Actively participating and collaborating with the MRSE in the planning, installation, and acceptance testing for new equipment at the VA medical facility to ensure proper room design and construction, environmental controls, and networking interoperability.

o. **VA Medical Facility Magnetic Resonance Director.** The VA medical facility MRMD is a radiologist or physician who is designated as Level 2 MR personnel and has received training specifically in MRI Safety. They must possess requisite skills to be the subject matter expert for the VA medical facility when devising MRI protocols. The VA medical facility MRMD is responsible for:

(1) Serving as the Chair or as a member of the MR Safety Committee if appointed by the VA medical facility Radiology Service Chief.

(2) Working closely with and directing the VA medical facility MRSO(s) and Level 1 and 2 personnel to ensure safe operation of the MR areas.

(3) Ensuring adherence to MRI and contrast protocols at the VA medical facility.

(4) Collaborating with the VA medical facility MRSO and to develop VA medical facility-specific imaging protocols. Imaging protocols must address risks, including those associated with patients who may experience claustrophobia, anxiety, or emotional distress, and those with implanted devices, shrapnel, etc.

(5) Ensuring compliance with requirements for minimum staffing when patients or research subjects are present in Zones II through IV. **NOTE:** For more information on MRI Staffing requirements, please see the MRI Staffing SOP located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.

p. **VA Medical Facility Magnetic Resonance Safety Officer.** The VA medical facility MRSO is an individual who has been designated as Level 2 MR personnel, is competent in the application of VA medical facility MRI protocols (typically a working MR Technologist), and has completed advanced training in MRI safety. The MRSO must be either a technologist certified by the American Registry of Radiologic Technologist (ARRT), a medical instrument technician, radiation safety officer, registered nurse, physician assistant, nurse practitioner, Radiologist, or a credentialed physician of the

medical staff with American Board of Magnetic Resonance Safety (ABMRS) certification as an MRSO, and is responsible for the following:

(1) Working collaboratively with the MRMD and all Level 1 and 2 MR personnel to ensure safe operation of the MR areas. **NOTE:** *An MRSO must be readily available to MRI staff for review of safety issues.*

(2) Maintaining annual certification of MRSO competency as evaluated by the VA medical facility Radiology Service Chief or designee, as outlined in the competency evaluation form located on the [Radiology SharePoint site](#). **NOTE:** *This is an internal VA website that is not available to the public.*

(3) Serving as the Chair or as a member of the MR Safety Committee if appointed by the VA medical facility Radiology Service Chief.

(4) Testing and documenting call systems and intercoms between patients and MR technologists on a daily basis.

(5) Assisting the VA medical facility Radiology Service Chief or MRMD in the development of MRI Safety practices and MRI procedures.

(6) Ensuring the completion of a Joint Patient Safety Report (JPSR) and report to the MR Safety Committee of close call or adverse events. **NOTE:** *For more information about what constitutes close calls or adverse events, see VHA Directive 1050.01(1).*

(7) Working closely with the VA medical facility MRMD and MR Safety Committee to devise methods to mitigate close calls and adverse events. **NOTE:** *For more information about what constitutes close calls or adverse events, see VHA Directive 1050.01(1).*

(8) Properly labeling all mobile items that are utilized in Zones III and IV for safe use in the MR environment. **NOTE:** *MR Unsafe signage must not be used. Any mobile MR Unsafe equipment in Zone III (i.e., staff chair) must be tethered.*

(9) Ensuring MRI safety zone signage is present and fully visible on a weekly basis.

(10) Collaborating with the VA medical facility MRMD to devise VA medical facility-specific imaging protocols. Imaging protocols must address risks, including those associated with patients who may experience claustrophobia, anxiety, or emotional distress, and those with implanted devices, shrapnel, etc.

(11) Ensuring proper zoning of the VA medical facility MRI suite with the necessary signage during the initial design and marking of the MRI suite. **NOTE:** *For more information on zoning and physical security of the MR Environment, please see SOP 1105.05-06 – Physical Security and Access, located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.*

(12) Ensuring staff are trained on the quench procedures, to include evacuation of staff and patients. **NOTE:** *A quench of the magnet must not be performed during the emergency drills. For additional information related to the Risks of the MR Environment, please see SOP 1105.05-03 – Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.*

(13) Ensuring the conduct of annual emergency simulation drills. Simulation drills must be conducted annually for each of the following Zone IV events: (1) acute contrast reaction, (2) cardiac arrest, (3) fire, (4) disruptive patient, and (5) trapped patient. Such emergencies pose a special danger because responding personnel may bring unsafe objects with them, such as crash carts, oxygen tanks, fire axes, and police service weapons. Summaries of the drills must be presented at the MR Safety Committee and documented in the meeting minutes.

(14) Collaborating with the VA medical facility MR Safety Committee to conduct an annual risk assessment for existing MRI suites not in compliance with current VA design guide parameters and completing a mitigation plan. For details on the elements of the risk assessment, see SOP 1105.05-03: Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment. **NOTE:** *The VA medical facility Patient Safety Manager may assist the MRSO and MR Safety Committee to conduct the annual risk assessment when requested by the VA medical facility MRSO or VA medical facility MR Safety Committee.*

q. **VA Medical Facility Magnetic Resonance Safety Expert.** Each VA medical facility must have a designated MRSE. The VA medical facility MRSE is often an MR physicist with external certification as an MRSE, but a radiologist or a credentialed physician of the medical staff with external certification as an MRSE could also fill this role. The functions of the MRSE may be performed either in person or virtually. The VA medical facility MRSE is responsible for:

(1) Providing guidance to the VA medical facility Radiology Service Chief on the clinical and administrative aspects of the safe use of MR equipment; the development of local rules and procedures related to MR safety; nonroutine MR processes, including but not limited to implanted medical devices; and the development and maintenance of MR Safety programs and MR Quality Assurance programs.

(2) Providing assistance and consultation to the MRSO and MRMD on the development of MRI protocols to allow the safe imaging of patients with MRI conditional implanted devices.

(3) Actively participating in the planning, installation, and acceptance testing for new equipment at the VA medical facility.

(4) Serving as the VA medical facility subject matter expert for any root cause analyses or administrative investigations related to MRI adverse events.

r. **VA Medical Facility Magnetic Resonance Personnel.**

(1) **Level 1.** Level 1 MR personnel are VA medical facility staff members designated by the VA medical facility Chief of Staff who are required to receive basic MR safety training. **NOTE:** For a definition of Zones III and IV, see the definition on “MR Zones” below. Level 1 VA medical facility MR personnel are responsible for:

(a) Completing annual Level 1 MR training. See training information below in paragraph 3.

(b) Completing a personal MRI safety assessment annually, updating their safety assessment, and reporting to the VA medical facility MRSO or a Level 2 MR personnel any procedure or surgery they have undergone where a device with ferromagnetic properties has been implanted, to include detailed information on the implant.

(c) Overseeing adherence of patients and non-MR staff to guidelines below regarding access to the different Zones.

1. Level 1 MR personnel are permitted unaccompanied access throughout Zones I through III.

2. Level 1 MR personnel must have permission from a Level 2 MR personnel before they can enter Zone IV. **NOTE:** An important difference between Level 1 and Level 2 MR personnel is that Level 1 personnel have unrestricted access through Zone III, but must have permission before entering Zone IV. Level 2 MR personnel may screen and authorize Level 1 and Non-MR personnel into Zone IV, and have unrestricted access throughout all Zones. Non-MR personnel are patients, research subjects, visitors, or VA medical facility staff who are not designated by the VA medical facility as Level 1 or Level 2 MR personnel.

3. Level 1 MR personnel may be permitted to accompany non-MR personnel into and throughout Zone III as long as a Level 2 MR personnel is present. Level 1 MR personnel cannot directly admit and cannot be responsible for non-MR personnel in Zone IV.

(2) **Level 2.** Level 2 MR personnel are individuals designated by the VA medical facility Radiology Service Chief and who receive advanced MR safety training. Level 2 VA medical facility MR personnel are responsible for:

(a) Overseeing the day-to-day safe operation of the MR environment. **NOTE:** For more information on Patient Preparation, please see SOP 1105.05-01 – Patient Preparation located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.

(b) Ensuring safety screening questionnaires are completed for all VA medical facility staff and non-MR personnel prior to their entry into Zone III. **NOTE:** Patients, research subjects and any visitors entering Zone III must fill out a screening questionnaire at each visit.

(c) Performing the second-level patient screening MR safety questionnaire on all nonemergent patients who will enter Zone IV. Level 2 MR personnel must then review these completed questionnaires orally with the patient, surrogate, or research subject in their entirety before permitting the patient or research subject to be cleared to enter into Zone III. At least one Level 2 MR personnel must legibly sign the second screening questionnaire, along with the patient or surrogate, or research subject, and the form must be archived into the patient's electronic health record. Level 2 MR personnel must clarify and document blank, adverse, or ambiguous answers from the screening questionnaire before allowing the individual into Zone III.

(d) Granting access to individuals to Zone IV.

(e) Accompanying or immediately supervising non-MR personnel for the entirety of their duration within Zone III or IV. Remaining in Zone III or IV if a patient, research subject, visitor, or non-Level 2 trained staff (e.g., EMS staff, Level 1 trained engineering staff) are in Zone IV.

(f) Following established product MR Conditional labeling and safety guidelines carefully and precisely, applying them to the static magnetic field strengths at which they had been tested.

(g) Supervising non-MR personnel still within Zone III or IV until such supervision has been formally transferred to another of the facility's Level 2 MR personnel (e.g., in the event of a shift change or lunch break).

1. Level 2 MR personnel can move freely through all Zones without the need for prior approval.

2. Level 2 MR personnel can admit other staff into Zone IV under their personal supervision after individual staff safety screening following locally established screening and monitoring procedures.

(h) Undergoing personal safety screening assessment annually, or as conditions change due to the individual's respective health changes, e.g., surgery with implanted devices. Records for their annual screening must be kept by the VA medical facility and made available upon request (e.g., from Office of the Inspector General (OIG), Chair of the VA medical facility MR Safety Committee). **NOTE:** *An important difference between Level 1 and Level 2 MR personnel is that Level 1 personnel have unrestricted access through Zone III but must have permission before entering Zone IV. Level 2 MR personnel may screen and authorize Level 1 and Non-MR personnel into Zone IV and have unrestricted access throughout all Zones.*

s. **VA Medical Facility Patient Safety Manager.** The VA medical facility Patient Safety Manager is responsible for:

(1) Collaborating with the VA medical facility MRSO and the VA medical facility Chair, MR Safety Committee to conduct the annual risk assessment for existing MRI

suites, if requested by the VA medical facility MRSO or VA medical facility MR Safety Committee.

(2) Reviewing the annual risk assessment for existing MRI suites. For details on the elements of the risk assessment, see SOP 1105.05-03: Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment located on the [Radiology SharePoint site](#). **NOTE:** *This is an internal VA website that is not available to the public.*

t. **VA Medical Facility Ordering Health Care Provider.** The VA medical facility ordering health care provider is responsible for educating patients and research subjects regarding MRI safety and submitting the VA medical facility-specific initial screening questionnaire at the time the MRI order is placed by the provider. **NOTE:** *Please refer to SOP 1105.05-05 – Safety Screening located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.*

### 3. TRAINING

a. **Level 1 MR Safety Training.** Annual Level 1 MR safety training is required for individuals who have been designated as Level 1 MR personnel. Any Level 1 MR personnel must register in VA's Talent Management System (TMS) for course # 9696 or equivalent locally developed training. In the event of extenuating circumstances, personnel whose normal duties do not require level 1 training can receive "just-in-time" training. All Health Professions Trainees will be designated as Level 1 MR personnel and only required to complete the MR Safety Training through the TMS Mandatory Training for Trainees (MTT) course #3185966 or MTT Refresher course #3192008. **NOTE:** *See VHA Handbook 1400.04(1) for additional information on health trainees.*

b. **Level 2 MR Safety Training.** Annual Level 2 MR Safety training is required for individuals who have been designated as Level 2 MR personnel. Options for training include TMS Training course #131004384, as well as locally developed or web-based training which has been approved by the VA medical facility MR Safety Committee. Training must encompass education in the broader aspects of MR safety issues i.e., issues related to the potential for thermal burns, direct neuromuscular excitation from rapidly changing gradients, and how to respond to emergencies in the MR environment.

### 4. BACKGROUND

The MR environment may present a risk of injury to patients, visitors, trainees, and employees. Injuries may be avoided by safety training and strict adherence to safety procedures. All MR staff are required to be familiar with the mitigation of risks of the MR environment and to report safety events and near miss promptly. **NOTE:** *For more information on risks of the MR Environment, please see SOP 1105.05-03 – Risks of the MR Environment: Mitigation, Event Reporting, and Risk Assessment located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.*

## 5. DEFINITIONS

a. **Ferromagnetic.** Ferromagnetics are metals including, but not limited to, iron, steel, and cobalt, which are strongly attracted to a magnetic field or can become magnetized by the magnetic field.

b. **Magnetic Resonance Imaging.** An MRI is a technique to visualize internal organs that employs a powerful magnetic field as well as radiofrequency electromagnetic fields.

c. **Magnetic Resonance.** An MR is a characteristic of the powerful magnet that can be associated with the environment, equipment, and/or personnel.

d. **MR Conditional.** MR Conditional refers to devices such as pacemakers and other implants or objects which have been deemed appropriate in the MR environment with very specific restrictions and conditions as set by the manufacturer. These restrictions may be specific to the field strength of the magnet as well as the technical imaging parameters. Deviating from the restrictive conditions removes the manufacturer's conditional status and therefore may render them unsafe. ***NOTE: Alterations performed by a facility on MR Safe, MR Unsafe, and MR Conditional equipment or devices may alter the compatibility properties of the device, which has the potential to cause damage to the device/object or anyone near the device/object.***

e. **MR Safe.** MR Safe refers to objects or devices that are known to be nonmagnetic and not electrically conductive and therefore known to be safe in Zone IV. MR Safe items can be indwelling items as well as external items in the MR environment. Indwelling items are those that have been implanted into an employee or patient's body and have been deemed MR Safe by the manufacturer.

f. **MR Unsafe.** MR Unsafe refers to objects or devices that have been tested and have been found to be attracted to a magnetic field and must not enter Zone IV. If external MR Unsafe devices are necessary for patient care in Zone III and are not fixed to the VA medical facility structure, they must be tethered or secured to prevent accidental entry into Zone IV. ***NOTE: For a definition of Zones III and IV, see the definition on "MR Zones" below.***

g. **MR Zones.** The MR area is set up with four Zones to facilitate patient, guest, and employee safety. The Zones are designated as I through IV and each progressive Zone has more stringent safety requirements. Additional information can be found at [American College of Radiology \(ACR\) Manual on MR Safety](#).

(1) **Zone I.** Zone I is the area where the general public and other health care team members move freely about. This is the area where the MR environment is accessed by outpatients and visitors.

(2) **Zone II.** Zone II is the area that forms the interface between Zone I and Zone III. Zone II is utilized for greeting the patients, checking them in for their respective exams, and screening for hazardous MR devices or implants. Zone II is the designated location

where patients and other non-MR personnel change their attire for MR safe clothing. Zone II may be designated as the entry point for inpatients.

(3) **Zone III.** Zone III is a restricted access area that forms the interface between Zone II and Zone IV. This area is controlled by MR personnel and typically known as the control area where Level 2 MR personnel operate the MRI machine.

(4) **Zone IV.** Zone IV is a highly restricted area that is only accessible through Zone III. This area is controlled by Level 2 MR personnel and is the location of the MRI machine.

h. **Quench.** A quench is an intentional or accidental loss of the superconducting magnetic field. A quench can result from a critically low level of cryogenics or can be induced by increasing the resistivity of the magnet wires. A quench results in the heating and rapid boiling off of cryogenics. There are potential risks to a quench (e.g., asphyxiation, frostbite, fire hazards) and generally associated costs to get the MRI system operational again. **NOTE:** For more information on risks of the MR Environment, please see SOP 1105.05-03 – Risks of the MR Environment, Mitigation and Event Reporting, located on the [Radiology SharePoint site](#). This is an internal VA website that is not available to the public.

## 6. RECORDS MANAGEMENT

All records regardless of format (for example, paper, electronic, electronic systems) created by this directive must be managed as required by the National Archives and Records Administration (NARA) approved records schedules found in VHA Records Control Schedule 10-1. Questions regarding any aspect of records management can be addressed to the appropriate Records Officer.

## 7. REFERENCES

a. VHA Directive 1043, Restructuring of VHA Clinical Programs, dated November 2, 2016.

b. VHA Directive 1050.01(1), VHA Quality and Patient Safety Programs, dated March 24, 2023.

c. VHA Directive 1073(2), Moderate Sedation for Non-Anesthesia Providers, dated December 20, 2022.

d. VHA Directive 1400.01, Supervision of Physician, Dental, Optometry, Chiropractic and Podiatry Residents, dated November 7, 2019.

e. VHA Handbook 1400.04(1), Supervision of Associated Health Trainees, March 19, 2015.

f. VA Office of Construction & Facilities Management. [Imaging Services Design Guide \(rev. 2022\)](#).

g. VHA Intranet: MRSO Competency Evaluation Form. [Radiology SharePoint site](#).  
**NOTE:** *This is an internal VA website that is not available to the public.*

h. VHA Intranet: [Radiology SharePoint site](#). **NOTE:** *This is an internal VA website that is not available to the public.*

i. [ACR Manual on MR Safety](#).