

Holland Bloorview Kids Rehabilitation Hospital	Policy Title: Practice and Procedures MRI Emergency Procedures - Flood
	Date Created: Dec 19, 2019 Updated:

Objective

The MRI Emergency procedures Flood policy is for all personnel to provide the appropriate response to a flood emergency situation in the MRI Unit.

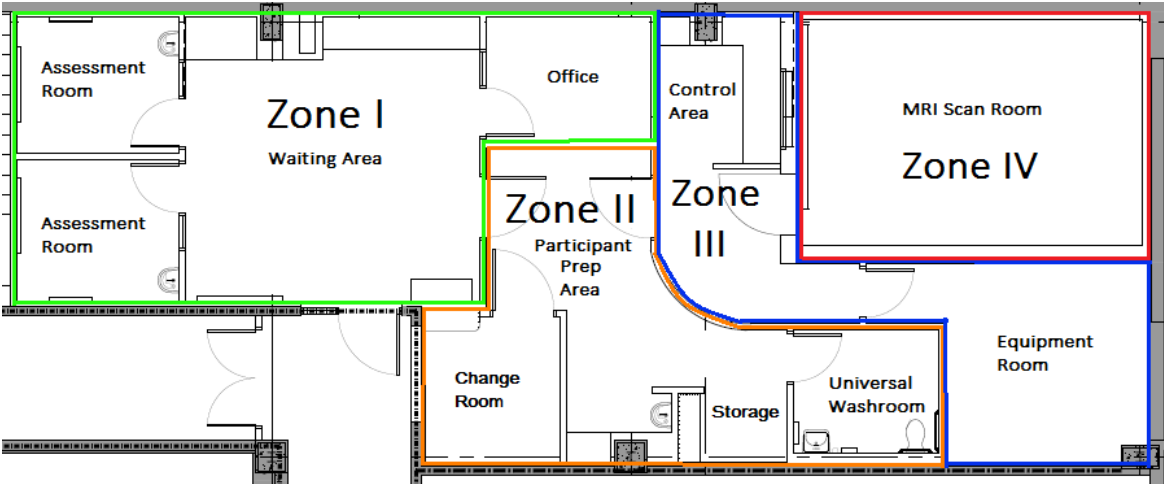
Introduction


The Magnetic Resonance (MR) environment presents unique hazards not commonly encountered by most personnel. Anyone entering the MR environment must be conscious of the strong magnetic field, radio frequencies and time varying gradient field. The most important point to remember is that the magnet is **always on**. Entry into the scan room (Zone IV) must only be authorized after successful screening process and completion of the screening form. All metallic objects and pocket contents must be removed.

During a flood emergency in the in the MRI Unit, personnel are to follow designated policy to ensure safety for all participants, family and personnel.

Definitions

- Zone I:** Readily accessible areas by the general public outside MR environment (waiting room)
- Zone II:** Area between Zone I and Zone III where individuals are supervised by MR personnel (participant prep area)
- Zone III:** Restricted transition area between Zone II and Zone IV that is supervised and controlled by MR personnel (control room and restricted waiting area)
- Zone IV:** Area controlled and strictly supervised by Level Two MR personnel. This is a potentially hazardous area with presence of very strong magnetic fields. (MR Scan Room)



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Level Two MR Personnel: Individuals who work in MR environment and have extensive education on MR safety issues that is renewed on a yearly building automation system (is (i.e., MRI Technologist, MR Physicist)


Level One MR Personnel: Individuals who work in MR environment that have completed and passed minimum MR safety education (administered by a Senior MRI Technologist certified in MR safety) that is renewed on a yearly basis. (e.g., Clinical Coordinators, Research Assistants, Imaging Analyst)

Authorized non-MR Personnel: Staff that enter the MR environment occasionally and have completed and passed minimum MR safety education (administered by a Senior MRI Technologist certified in MR safety) that is renewed on a yearly basis. (e.g., building-services staff)

Access to MRI Unit: The personnel listed above will be provided with electronic and key access to MRI Unit. The MRI Technologist will also have key access to the MR scan room (Zone IV). For emergency access to the MR scan room, a key will be stored in a breakable glass case located in the MR control room

Flood in MRI Unit

- Inspections shall be done daily of all areas of the MRI Unit. Scan room should be inspected visually through the control-room window by authorized non-MRI Personnel.
- Water-detection monitor in equipment room shall be used to monitor water leak at floor level. Monitor shall be connected to the building automation system (BAS), and alarms will be transmitted to appropriate MR personnel, Building Services and Security. Immediate investigation of such alarm is required and appropriate action taken.
- Building Services and Security Services must be immediately notified of water leak in any area of MR Unit
- There are local shut off valves provided at toilet, each hand sink and at the cold-head system in the equipment room. Level Two MR personnel shall be trained to shut off water supply at each of these locations.
- Main water shut off valves for supply to toilet and hand sinks is located in the ceiling of room 0E175E. 8 foot ladder is required to access valves. Ladder is available in pool mechanical room 0E180/0E181.
- If water volume is excessive, staff are to turn off all computers and electronic equipment, and tarp equipment that may be in the path of water. Equipment room and washroom are equipped with floor drains.

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- In the event of a flood with water extending into scan room (Zone IV), flood investigation in the scan room is to be done by MR Personnel or authorized non-MR Personnel. If flood is detected extending into scan room:
- Level Two or authorized non-MR Personnel shuts off electrical power to magnet by pressing red button (inside push button cover) on the wall in the control room labelled “EPO”, **NOT** the quench button



- Level Two Personnel, Building Services and Environmental Services will work together to develop corrective measures, containment of water and clean up.
- Level Two Personnel is to contact system manufacturer to determine if MRI equipment needs to be serviced by engineer

If flood is detected after hours, Senior MRI technologist and Manager of Building Services (or designate on-call) will be contacted by security. Authorized non-MR Personnel in Building Services will follow steps described above to turn off water main and electrical power if needed. Environmental Services will be contacted for assistance with water clean up.

References

ACR Guidance Document for Safe MR Practices: 2013. JOURNAL OF MAGNETIC RESONANCE IMAGING 37:501–530 (2013)

Shellock, F. G., Magnetic Resonance Procedures: Health Effects and Safety, Pre-Magnetic Resonance Procedure Screening, 2009