



MRI Personnel Training	
SOP Number:	110.02
Date:	07-May-2020

MRI Personnel Training

1. Introduction

- 1.1 Due to the inherent hazards associated with the static magnetic field, access to the CFMM Core MRI Facilities are restricted to ensure the safety of all patients, subjects, visitors, and staff. The CFMM Core Facility is conceptually divided into four Zones of increasing level of potential risk and access restriction, as defined in SOP#100: “MRI Safety Zones”.
- 1.2 Individuals requiring security access to the CFMM MRI Zones III and IV and who meet the requirements set out by the facility may be granted access as Level 1 and Level 2 MRI Personnel and under special circumstances as Research Personnel. Eligibility, requirements and restrictions on these individuals are outlined in this SOP.

2. Level 2 MRI Personnel

- 2.1 The CFMM 3T and 7T human MRI systems are certified Class II Medical Devices as determined through the federal Health Protection Programme (HPP) of Canada. The HPP has deemed it the responsibility of the facility to ensure that only authorized personnel operate the 3T and 7T human MRI scanners.
 - 2.1.1 Authorized 3T and 7T MRI operators will include only individuals who have completed the education, facility orientation, and training as outlined in this SOP.
 - 2.1.1.1 Individuals who complete this training, who have also completed a formal Magnetic Resonance education program at an academic institution and who have passed the Canadian Association of Medical Radiation Technologists (CAMRT) certification exam in Magnetic Resonance (i.e. hold RTMR designation), are herein referred to as MRI Technologists.
 - 2.1.1.2 All other individuals who have completed this training but do not hold RTMR designation, are herein referred to as Level 1 or MRI Operators.
- 2.2 All operators of the 3T and 7T MRI scanners must be trained as Level 2 MRI Personnel for performing experiments involving *human* subjects, plus complete additional training on the system and its components to ensure the wellbeing of patients, volunteers, staff as well as the MRI system itself.
- 2.3 Level 2 MRI Personnel may include, but are not limited to, the Facility Director and MRI Technologists. Level 2 MRI Personnel are those who require both Security Access to MRI Zones III of the CFMM, and unsupervised access to MRI Zones IV (MRI magnet rooms).
- 2.4 Level 2 MRI Personnel are required to read and sign off on all SOP’s as indicated within “Signature Sheet” declaring that they have read, understand, and plan to follow all of the guidelines set in place by the SOP’s. The signature sheet must be given to the Director or the Senior MRI Technologist.



MRI Personnel Training	
SOP Number:	110.02
Date:	07-May-2020

- 2.5 Upon signing off on relevant SOPs it is mandatory that all Level 2 MRI Personnel complete an on-site MRI Safety and Orientation session and also take part in periodic review sessions as required. The content, frequency, and extent of these sessions will be determined by the senior facility staff.
- 2.5.1 Due to the potential safety hazards and inherent responsibility of Level 2 MRI Personnel, these individuals must complete more extensive training and education in all aspects of MRI safety and facility operation than Level 1 MRI Personnel.
- 2.5.2 The CFMM MRI Facility Safety and Orientation must occur prior to obtaining Security Access to the facility and will consist of a review of MRI safety issues, emergency procedures, equipment handling and procedures, restrictions and responsibilities of Level 2 MRI Personnel, facility access restrictions, and other topics as determined by facility staff.
- 2.5.2.1 The “Safety Training Checklist” will be used as a general guideline during the orientation session. Upon completion of the session, both the facility staff member performing the training session and the trainee must sign off on this Checklist.
- 2.6 Due to the responsibility incurred when operating the scanner, and the importance of the safety of the volunteer/patient and experimental support personnel, all Level 2 MRI Personnel are required to complete and maintain current CPR Level C, AED (Automated External Defibrillator), and Standard First-Aid certification.
- 2.6.1 Proof of current certification (i.e. a copy of the certification card signed by the instructor) must be provided to CFMM facility staff.
- 2.6.2 Certification and re-certification courses will be arranged by facility staff and held onsite on an annual basis. Operators with CPR, AED, and/or First Aid certification expiring in any calendar year will be notified and expected to either attend the re-certification course or make alternate arrangements to obtain re-certification.
- 2.7 Specific training for CFMM MRI systems may include and is not limited to: orientation to and instruction on the MRI system, operating system, and software; facility hardware orientation and training; peripheral equipment training; data transfer protocol instruction; quality assurance training; shadowing an MRI Technologist or Operator; and performing supervised MRI scanning. The extent and duration of training will be on an individual basis as determined by facility staff.
- 2.8 Review sessions may include, but are not limited to, refresher CFMM MRI Facility Safety and Orientation sessions, CPR/AED/First-Aid re-certification, emergency procedure / Code Blue reviews, and orientation to new facility policies, procedures, or safety protocols. Level 2 MRI Personnel will be notified in advance of any review sessions they are required to attend.
- 2.9 All relevant documentation and information pertaining to operator status will be securely stored within the CFMM Core Facility.



MRI Personnel Training	
SOP Number:	110.02
Date:	07-May-2020

3. **Level 1 MRI Personnel**

- 3.1 Will include only individuals who have completed the education, facility orientation, and training as outlined in this SOP.
 - 3.1.1 Individuals who complete this training, but do not hold RTMR designation, are herein referred to as Level 1 or MRI Operators may include, but not limited to, MRI physicists, students and post-doctoral fellows (PDFs).
- 3.2 Are able to conduct *non-human* (animal models, phantoms) scanning, and must complete additional safety and operational training to ensure the wellbeing of research staff as well as the MRI system itself.
- 3.3 Are eligible to have security access to MRI Zones III of the CFMM, as well as unsupervised access to MRI Zones IV (MRI magnet rooms).
- 3.4 Are required to read and sign off on all SOP's as indicated within "Signature Sheet" declaring that they have read, understand, and plan to follow all of the guidelines set in place by the SOP's. The signature sheet must be given to the Director or the Senior MRI Technologist.
- 3.5 Upon signing off on relevant SOPs it is mandatory that all Level 1 MRI Personnel complete an on-site MRI Safety and Orientation session and also take part in periodic review sessions as required. The content, frequency, and extent of these sessions will be determined by the senior facility staff.
 - 3.5.1 Due to the potential safety hazards and inherent responsibility of Level 1 MRI Personnel must complete training and education in all aspects of MRI safety and facility operation.
 - 3.5.2 The CFMM MRI Facility Safety and Orientation must occur prior to obtaining Security Access to the facility and will consist of a review of MRI safety issues, emergency procedures, equipment handling and procedures, restrictions and responsibilities of Level 1 MRI Personnel, facility access restrictions, and other topics as determined by facility staff.
 - 3.5.2.1 The "Safety Training Checklist" will be used as a general guideline during the orientation session. Upon completion of the session, both the facility staff member performing the training session and the trainee must sign off on this Checklist.
- 3.6 Due to the responsibility incurred when operating the scanner, and the importance of the safety of research personnel, all Level 1 and 2 MRI Personnel are required to complete and maintain current CPR Level C, AED (Automated External Defibrillator), and Standard First-Aid certification.
 - 3.6.1 Proof of current certification (i.e. a copy of the certification card signed by the instructor) must be provided to CFMM facility staff.
 - 3.6.2 Certification and re-certification courses will be arranged by facility staff and held onsite on an annual basis. Operators with CPR, AED, and/or First Aid



MRI Personnel Training	
SOP Number:	110.02
Date:	07-May-2020

certification expiring in any calendar year will be notified and expected to either attend the re-certification course or make alternate arrangements to obtain re-certification.

- 3.7 Specific training for CFMM MRI systems may include and is not limited to: orientation to and instruction on the MRI system, operating system, and software; facility hardware orientation and training; peripheral equipment training; data transfer protocol instruction; quality assurance training. The extent and duration of training will be on an individual basis as determined by facility staff.
- 3.8 Review sessions may include, but are not limited to, refresher CFMM MRI Facility Safety and Orientation sessions, CPR/AED/First-Aid re-certification, emergency procedure / Code Blue reviews, and orientation to new facility policies, procedures, or safety protocols. Level 1 MRI Personnel will be notified in advance of any review sessions they are required to attend.
- 3.9 All relevant documentation and information pertaining to operator status will be securely stored within the CFMM Core Facility.

4. Research Personnel

- 4.1 May include, but are not limited to, researchers, staff, students, study coordinators and other individuals whose presence is necessary for the successful execution and completion of the research project.
 - 1.1 Security access to the CFMM MRI Zones III may be granted to Research Personnel at the discretion of the CFMM Director.
 - 4.2 Are required to read and sign off on all SOP's as indicated within "Signature Sheet" declaring that they have read, understand, and plan to follow all of the guidelines set in place by the SOPs. The signature sheet must be given to the Director or the Senior MRI Technologist.
 - 1.2 Must complete MRI Safety Training and a CFMM MRI Facility Orientation session, the content and extent of which will be determined by a CFMM Level 2 staff member.
 - 1.3 MRI Safety Training will include:
 - 1.3.1 On-site safety orientation.
 - 1.3.2 CFMM MRI Facility Orientation will occur either prior to or during the Research Personnel's first scan session and will consist of a review of MRI safety issues, restrictions and limitations on the Research Personnel's activities, and other topics as determined by facility staff.
 - 1.4 Entry into MRI Zone IV (magnet room) is NOT permitted without the permission and supervision of Level 2 MRI Personnel. All access to the magnet room is subject to the approval and discretion of authorized Level 2 MRI Personnel.
 - 1.5 While present within CFMM Zones III and IV, Research Personnel will remain under the supervision of Level 1 and/or Level 2 MRI Personnel at all times.



MRI Personnel Training	
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2. **General Considerations**

- 2.1 Individuals who have safety contraindications, medical devices, or implants incompatible with the MR environment will NOT be granted Level 2 or Level 1 MRI Personnel status or allowed to enter Zone IV of the CFMM MRI areas at any time.
- 2.2 All Personnel, including Level 2, Level 1 and Research Personnel, must complete the CFMM “Magnetic Resonance Environment Screening Questionnaire” and have it reviewed, signed, and approved by authorized Level 2 MRI Personnel. Completed screening questionnaires will be securely filed within CFMM facility.
- 2.3 New questionnaires do not need to be completed before each admittance. However, it is the responsibility of these individuals to inform Level 2 MRI Personnel (e.g. CFMM Director or MRI Technologist) of any change in status (e.g. if they undergo surgery, have an eye injury with metal, or obtain any metallic implants or devices). After any change in status, individuals must complete a new screening questionnaire and obtain approval from Level 2 MRI Personnel before entering Zone IV (magnet room).



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Revision Chronology		
Version Number	Date	Changes
130.01	28 July 2008	Original Version
110.02	07 May 2020	Revised

CFMM Director Signature: _____

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