

MRI Training Scheme for Level 0, Level 1, Level 2 and Level 3 Operators

Version 7

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Document History

Version	Comments	Author(s)	Date
7.0	Added rules for pregnant individuals	A Gouws	October 2019
6.0	Added metal detector training requirement	A Gouws	September 2018
5.0	Changed content to reflect the use of multiple MRI systems at YNiC	A Gouws	December 2017
4.0	Added Level 3 operator – replaces current Level 2 but allows definition of Level 2 as Level 1 with training privilege	A Gouws	October 2016
3.0	Level 1 operator revision	R Devlin	May 2015
2.0	Brought into standardised training scheme layout	R Devlin / M Hymers	May 2014
1.0	Initial Release	R Devlin	November 2012
0.1	Draft	R Devlin	September 2012

Referenced Documents

Title	Type
Departmental Induction for Operators (General)	Form
Modality Operator Training (MRI Level 0)	Form
Modality Operator Training (MRI Level 1)	Form
Modality Operator Training (MRI Level 1 Training Log)	Form
Modality Operator Training (MRI Level 2)	Form
Modality Operator Training (MRI Level 3)	Form
MRI Error Reporting Form	Form
Safety Questionnaire and Consent for Participants: Modality - MRI	Form
YNiC Clinical Diagnostic Policy	Web Policy
MRI Console Operation Manual For Level 1 Operators	Document
MRI Local Rules for Operators	Document
MRI Safety Manual for Operators	Document
MRI Safety Questionnaire Explanation for Operators	Document
Console Operation Manual	External Document (GE)

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1. Introduction

This document contains the training scheme for the Magnetic Resonance Imaging (MRI) systems within the York NeuroImaging Centre. The purpose of the training scheme is to provide a documented framework by which individuals can be trained to work safely in the MR environment and specifically within the inner controlled areas of MRI scanning suites.

2. Administration of the scheme

Only employees of the University of York can be trained to be MR operators. The training will require significant commitment from the trainee and trainer and is not therefore open to casual or occasional MR users. Regular users of MRI may be invited to train to become a Level 1 MR operator. Applicants to become MR operators and the rationale to support their application will be reviewed by the Research Governance Committee. Training will not commence until the RGC have approved the application in writing. Typically Level 1 operator status will expire after 12 months. After 12 months the operator can apply for an extension by undergoing Level 1 renewal training.

Level 1 operators who gain significant experience (in excess of 20hours of scanning) may be considered to train other Level 0 or Level 1 operators and can apply to be assigned Level 2 status.

If any operator plans to perform MR scanning outside of normal working hours then they will need to provide full details (including the training of the staff/project members who will be present during scanning. There **must** be at least one other person trained to Level 0 status present at the time of scanning to ensure safety.

Multiple MRI systems are in use at YNiC. Operators are qualified to operate specifically named MRI devices. A single operator must not operate an MRI device for which they have not received training and on which they have not been certified via this scheme as a qualified operator.

3. Levels of Training

There are 4 Levels of operator recognised

3.1 Level 0 Operators

These are persons who are either in training to become a Level 1 operator or whose duties may require them to be within the inner controlled area during scanning. Level 0 operators will only enter the inner controlled area under the supervision of a Level 1, Level 2 or Level 3 operator. They may operate parts of the equipment under supervision., e.g. table movements etc.

3.2 Level 1 Operators

These are persons who have completed the Level 1 training programme including a minimum of 5 satisfactory supervised scans. They are allowed to enter the inner controlled area unsupervised and they are allowed to supervise Level 0 operators. Their Level 1 operator status is associated with specific projects as defined in the YNiC database, and Level 1 operators are only allowed to operate the scanner for scans associated with that project. Level 1 operators are permitted to run pre-prepared protocols. They are not permitted to create or modify protocols. A Level 1 operator is responsible for the conduct and safety of any person in the inner controlled area whilst they are operating the scanner. Typically Level 1 operator status expires after 12 months after which they can apply to undergo a training refresh if they wish to be the operator for another project. As a

Level 1 operator it is possible that you may discover an anomaly in a participant's brain. This can be distressing and you should think about how you would handle such an event. It is absolutely crucial that you do not inform the participant of the anomaly being detected. You should inform a Level 2 or Level 3 operator of your finding as soon as possible so that all the YNiC procedures that apply when an anomaly is detected can be implemented.

(see https://www.YNiC.york.ac.uk/information/policies#YNiC_Clinical_Diagnostic_Policy). Where a Level 1 or Level 2 operator scans a volunteer who has not had a previous structural MRI scan, these data should be brought to the attention of a Level 3 operator for screening.

3.3 Level 2 Operators

Level 1 operators who gain significant experience (an absolute minimum of 10 hours of scanning, but usually significantly more) may be considered to train other Level 0 or Level 1 operators and can apply to be assigned Level 2 status. Level 2 operators have the same duties and permissions as Level 1 operators, but also train persons to Level 0 and Level 1 operator standard. While Level 2 operators assess the performance of persons undergoing training on a session by session basis, a Level 3 operator performs the final assessment of persons in training for Level 1 status. A Level 2 operator is responsible for the conduct and safety of any person in the inner controlled area whilst they are operating the scanner or supervising its use during training.

Some training restrictions apply to Level 2 operators. These restrictions are noted in the Level 2 operator qualification log (*Modality Operator Training - MRI Level 2*) and are designed to ensure that Level 2 operators are not training other operators in protocols that they are not suitably familiar with. Level 2 operators must not train on protocols that fall beyond the scope of these restrictions.

3.4 Level 3 Operators

These persons are either clinically trained MR radiographers or YNiC staff who have had manufacturer led training in the use of MR equipment. Only Level 3 operators are allowed to create and modify scan protocols. Only clinically trained MR radiographers with a current HPC registration are allowed to perform clinical diagnostic MR examinations. A Level 3 operator is responsible for the conduct and safety of any person in the inner controlled area whilst they are operating the scanner. Level 3 operators also train persons to Level 0 and Level 1, and are responsible for assessing whether Level 1 operators are suitably qualified to be promoted to Level 2 operator status.

4. Training Requirements

All requirements documented below are required for each MRI device at YNiC independently.

4.1 Level 0 (All Operators)

All Levels of operators **must**:

1. View the MR Safety Video
2. Read the document *MRI Local Rules for Operators*
3. Read the document *Safety Manual for MR Operators*
4. Undergo a formal induction with a Level 2 or Level 3 operator. This must be documents on the Departmental Induction for Operators (General) and Modality Operator Training (MRI Level 0) forms.

5. Undergo training in the use of a metal detector as part of the final screening procedure for preparing patients and research participants for MRI.

Having successfully completed these steps the candidate will have shown that they understand safe working practices in MRI, and demonstrated competence in the skills required to place participants in the scanner and remove them safely when required. In addition, Level 0 operators are trained to clean the scanner coils between participants and prepare the bed for the next scan session.

4.2 Level 1

In addition to the requirements above, Level 1 operators **must** receive training in the management of participants, project specific equipment set up and stimulus PC use. Level 1 operators **must** hold a valid first aid certificate - evidence of this must be submitted to YNiC reception.

This training includes:

1. Reading the *YNiC Clinical Diagnostic Policy* (<https://www.YNiC.york.ac.uk/information/policies>)
2. The safety questionnaire and a full explanation for all the questions on it. See the document *MR Safety Questionnaire Explanation for Operators* which is to be read alongside the *Safety Questionnaire and Consent for Participants: Modality -MRI* form
3. Project specific set up including coils, mirror assemblies head phones etc.
4. Project specific stimulus pc set up as required.
5. The entire scan process from starting a new examination and entering the participants details to executing a pre-prepared protocol and all the sequences contained therein.
6. Returning equipment to the default status
7. Fault recording and reporting (see the form *MRI Error Reporting Form*)

In addition Level 1 operators **must**:

1. Read the MRI Console operation manual for Level 1 Operators
2. Read and countersign all safety bulletins in the safety bulletin folder.

Each element of the training will be delivered, assessed and signed off by the Level 2 or Level 3 operator using the Modality Operator Training (MRI Level 1) form.

Level 1 status will not be awarded until the trainee has performed 5 supervised scans that have been judged satisfactory by a Level 2 or Level 3 operator. These **must** be recorded on a Modality Operator Training (MRI Level 1 Training Log) form.

Where Level 1 operators have been routinely trained by Level 2 operators, the final assessment for conferment of Level 1 status will be undertaken by a Level 3 operator.

Both a completed Modality Operator Training (MRI Level 1) form and a completed Modality Operator Training (MRI Level 1 Training Log) form **must** be submitted to YNiC reception in order to qualify as a Level 1 operator.

4.3 Level 2

In addition to the requirements for Level 0 and Level 1 above, Level 2 operators are assessed by Level 3 operators to allow them to train new operators to the standard of Level 0 or Level 1 operators.

Qualified Level 2 operators **must**:

1. have operated the scanner for at least 10 hours operator experience at level 1. *(This is an absolute minimum. It is anticipated that those seeking level 2 operator status would be very likely to have extensive experience of operating the scanner).*
2. have observed the assessment of a level 0 operator wishing to be approved to level 1 operator status *(This allows the level 2 operator to reflect on how to supervise trainees with a view to how they will be assessed).*
3. show the necessary experience and skills to provide supervision of a trainee *(This will be determined by a level 3 operator and may place restrictions on which individuals a level 2 operator can supervise. For example, a level 2 operator may only be permitted to supervise individuals using specific protocols that the level 2 operator has experience of and is skilled in).*

A completed Modality Operator Training (MRI Level 2) form **must** be submitted to YNiC reception in order to qualify as a Level 2 operator.

4.4 Level 3

Receive training and safety updates from the system manufacturers as required. A list of current Level 3 operators will be maintained by YNiC. Level 3 operators **must** hold a valid first aid certificate - evidence of this must be submitted to YNiC reception.

A completed Modality Operator Training (MRI Level 3) form, signed by the Director of YNiC, **must** be submitted to YNiC reception in order to qualify as a Level 3 operator.

4.5 Training of pregnant individuals

Training of individuals who are pregnant should be carried out in accordance with the policies listed in the MRI Local Rules for Operators, Section 5.6.