

Safe Scanning New User MRI Training Program

Introduction:

The MR machine is a very powerful magnet that can pose a threat to both investigators and subjects if metallic objects become projectiles or if a subject has metal inside their body, such as a pace maker or aneurysm clip. In addition, the use of the MR scanner requires an adequate level of understanding to be able to perform proper research on the scanner. To minimize risks, and in order to maintain quality assurance, the following certification procedure has been developed for certified MRI Research Facility staff, such as a technologist, to administer to new users.

Certification Procedure:

- 1. Give a tour of the MRI Research Facility and explain areas of potential hazards.** The user will be given a full tour of the MRI Research Facility including the control room, scan room and equipment room. A brief introduction to the equipment will be given and a general overview of MR physics will be provided if required. While the main hazard in MR is the strong magnetic field, there are other potential hazards such as high voltage equipment and subjects who become claustrophobic. Each of these issues will be highlighted on the tour.
- 2. Provide MRI safety video for use to watch.** The MRI Research Facility has a safety video. New users will be required to watch the video to make them aware of the potential dangers associated with the MR scanner.
- 3. Go over checklist of items that must be completed when scanning a subject.** This is a list of 20 to 30 items that must be completed by the user for each study. Some of these items may seem trivial, but are required to minimize subject risks, control loss of data, and to maximize the quality of data acquired.
- 4. Demonstrate the scanner in use.** Run a research scan from beginning to end. Provide an overview of how to screen subjects, place the subject on the scanner table, landmark, and scan the subject. This includes an overview of the scanner system software and how to archive data.
- 5. Demonstrate how to operate fMRI equipment.** Go over where the stimulus computer is located, how to turn on the projector, where the manipulandums are kept, how to start BIOPAC, and how to troubleshoot equipment errors.
- 6. Establish correct scanning procedures – 8 hours.** The user will be required to observe a technologist run the scanner for a period of not less than eight hours. This must be certified by a technologist on staff at the MRI Research Facility.

7. **Allow user to run the scanner with a certified technologist present.** This allows the MRI Research Facility to evaluate a user's ability to operate the machine. This is an indefinite process and will only be completed once the technologist feels the user has an adequate understanding of how to operate the machine, is aware of and will take appropriate steps to minimize adverse event, and is capable of collecting high quality data.
8. **Certify user.** Certifying the user allows them to operate the MR scanner without supervision from another certified user. Certification is an understanding between the MRI Research Facility and the user that he or she has been trained to operate the MR machine and that they have been made aware of the safety concerns relating to the scanner.

In addition, both the user and faculty member bearing responsibility for the user is accepting full responsibility for any adverse events that may occur while the user is operating the scanner. There will be random checks on the user's ability to operate the scanner. If it is felt they are making errors or using judgment that may endanger themselves, others, or the quality of the images, the user's certification can be revoked. This will occur in a written letter to the user stating this fact.

Safe Scanning Program Checklist

Trainee Name:

1. Completed MRI Center Tour:
 - a. Date:
 - b. Trainer:

2. Watched MR Safety Video:
 - a. Date:
 - b. Trainer:

3. Demonstrated use of MR scanner:
 - a. Date:
 - b. Trainer:

4. Able to complete MRI Checklist of Requirements before scanning a subject:
 - a. Date:
 - b. Trainer:

5. Completed 8 hours of training with a technologist:
 - a. Date:
 - b. Trainer:

6. Completed Biological Safety Training program from Health Protection Office:
 - a. Date:
 - b. Trainer:

7. Completed Human Subjects Training through the CITI program:
 - a. Date:
 - b. Trainer:

8. Received CPR Certification:
 - a. Date:
 - b. Trainer: