UCSD Center for Functional MRI
Magnet Room, Operator and PI related Policies

This document describes the Center for Functional MRI (CFMRI) policies for:

A. **Entering the Magnet Room and Screening Personnel and Equipment**
B. **Operator Training, Certification, and Responsibilities**
C. **PI-related activities (IRB, IACUC)**

APPENDIX: Frequently Asked Questions (FAQs)

These policies apply to both the 3T and 7T systems. Additional policies that are more specific to each system are posted at http://cfmriweb.ucsd.edu/policies.html.

The **APPENDIX** at the end of this document lists some of the most Frequently Asked Questions (FAQs) regarding these policies.

A. Entering the Magnet Room, Screening Personnel and Equipment

1. **Only a certified Operator can run a study and that person has absolute authority over who enters the magnet room.**

   a. The Operator, and not the PI, has full responsibility for everyone who enters the magnet room.

   b. In the event that several operators are present, the Operator in charge is the one designated on the Webschedule.

   c. Operator certification will lapse if an operator goes more than 4 months without running a study (see B. Operator Policies below).

2. **No one can enter the magnet room until they have been fully screened by the Operator and it is the Operator's responsibility to file appropriate forms with Center Admin Staff.**

   a. *Certified Operators* are screened at the time of certification or after safety training. It is assumed that they will recognize if their screening status has changed and act accordingly. CFMRI cannot assume this for anyone else, so re-screening is essential.

   b. *Subjects* should be screened several times:

   i)   By the PI prior to coming to the Center, using the "MRI Recruitment/Advanced Screening" form available on the fMRI center website, or a screening form of the PIs own choice/design with subject identifying information, signed by the subject and retained by PI. PIs are strongly encouraged to screen their research subjects well in advance of their proposed scan session. This allows subjects who are unsuitable to be identified early (reducing short-notice cancellation of the scanner).

   ii) By the Operator prior to entering the magnet room, using the Center's "MRI Pre-entry Screening" form with no subject identification information except the subject number supplied by the PI. PI/Lab name and IRB Protocol # should be entered in the form which is signed by the operator and filed with the Center.

   iii) By the Operator again if the subject is brought back for a repeat study, using a new "MRI Pre-entry Screening" Form, with no identifying subject information, signed by the operator and filed with the Center. The "MRI Pre-entry Screening" Form is valid only on the day it is filled out and signed. Subjects may be rescanned on the same day without submitting a new form. Subjects rescanned on subsequent days will require re-screening.

c. *Research personnel* who regularly engage in MRI research are **required** to attend safety training. Research personnel are screened at the safety training, and it is assumed that they will recognize if their screening status has changed and act accordingly. All safety-trained personnel will be required to update their screening status when they take the yearly safety test. Repeated use of screening forms for necessary research personnel should **not** be used as a replacement for safety certification. Additional screening forms (beyond those completed as part of safety training) are **not** required for personnel who are safety certified by the Center, but the Operator **must** still verify that all personnel are in compliance with MRI safety guidelines.

d. *Screening Forms (*and instructions) are provided in the control room of each scanner, or may be printed from the CFMRI website: http://cfmriweb.ucsd.edu/forms.html

3. **Only people who have been through the safety training may enter the magnet room (the only exception is screened experimental subjects).**

a. Where an assistant is essential for the subject (e.g. parent, if the subject is a child), they may also enter the magnet room, but require the same pre-entry screening and ear protection as the research subject (completed form is filed with the Center). In general the number of personnel in the magnet room should be kept to an absolute minimum. **See also:** supplementary safety guidelines regarding scanning of children at http://cfmriweb.ucsd.edu/policies.html

b. The 2-hour safety lecture is scheduled regularly and everyone is encouraged to attend (even multiple times).

c. All researchers with after-hours access to the Center **must** complete safety training.

4. **Only approved equipment may be taken into the magnet room and *no* equipment may be taken into the magnet room while anyone is near the magnet bore.**

a. **Only** equipment explicitly approved by the Center may be taken into the magnet room, even if it appears to be non-metallic. Please coordinate equipment approval with Kun Lu (kunlu@ucsd.edu), the MRI Physics Lab Manager

b. Even approved equipment should always be taken in before the subject is placed on the table or other researchers begin to work near the bore of the magnet.

c. It is the Operator's responsibility to control equipment brought into the magnet room.

5. **Maximum number of people in the control room.**
To ensure the safety of personnel and equipment, a **maximum of 5 people,** including the operator(s) is permitted in the control room at a time. In the event of a tour or a class group of more than 5 people, please coordinate with Center Admin Staff (cfmri@ucsd.edu) prior to the event. Additionally, at least **TWO** Center certified operators must be present with the group during the event or whenever there are more than 5 people present in the control room. If you have trouble finding a second certified operator, please inform the Center Admin Staff so other arrangements can be made. Note that even when more than one certified operator is present, one operator should always be designated as the primary operator (who assumes responsibility for safety during the scan session).

B. Operator Policies

Primary Responsibility of the Operator
Operators are trained by the CFMRI staff and certified to operate the 3T and 7T imaging systems. The primary goal of this training is to ensure safety, and the designated Operator is fully responsible for the safety of everyone involved in a study. For this reason, it is good to think of the Operator as accountable to the Center Director rather than the PI, and it is their responsibility to make sure that everyone involved strictly adheres to Center policies. Each time a study is scheduled, a single individual is designated as the Operator of record, and that individual is fully responsible for the study, even if other Operators are present. The designated Operator must be in control of the scanner room at all times.

Eligibility for Operator Training
Due to liability concerns, operators must have a UCSD affiliation or be a student or employee of a partner institution that has signed the License and Equipment Use Agreement with UCSD. Volunteer faculty and staff members at UCSD or the partner institutions are not eligible. Because the training process is costly, it is most appropriate for people who will be at UCSD for several years. Temporary hires, undergraduates and Masters Students generally are not appropriate for this reason. Additional eligibility requirements for training on the 7T system are described in the 7T policies document available at http://cfmriweb.ucsd.edu/policies.html.

Requesting Operator Training
All requests for training must come from a PI who has a project currently approved at the CFMRI or who is planning to submit one within two months. In planning this, it is good to remember that Operator Certification will lapse if an Operator does not scan for four months (see Maintaining Operator Status below).

Operator Training
Training consists of a formal safety lecture and at least four hours of hands-on training. In addition, the Operator must complete an online test focusing on safety concerns, and be approved by Center staff. On completion of training, each Operator will sign a statement pledging to follow and enforce the policies of the Center related to scanning. If at any time an Operator does not feel comfortable with operating the scanner, they can contact Center Admin Staff (cfmri@ucsd.edu) to request a refresher session with Center staff.

Maintaining Operator Status
Each year the Operator must pass the online safety test to remain certified. In the event that the certification lapses because of failure to pass the online test, the Operator must
(a) Attend the safety lecture again, and
(b) Pass the online test to become re-certified.

In addition, if an operator goes more than **four months** without serving as the designated Operator in a study, they must arrange to scan with the Center staff for re-certification. Operator privileges can be revoked at any time for failure to adhere strictly to Center policies.

Specific Operator Responsibilities:

1. *Screening everyone who enters the magnet room.*
   The only people authorized to enter the magnet room without being screened are certified Operators. **Everyone else** must be screened before entering the magnet room, and re-screened for every study (you cannot assume that a screening from another day still applies). Research personnel who are safety-certified by the Center but not operator-certified should be screened by the operator, but a screening form is not required.   For personnel and subjects who are **not** safety-certified and have entered the magnet room, a screening form must be filled out and a legible copy of the completed screening form should be given to Center Admin Staff. Screening forms are

available on the CFMRI website (See **Section 2.d**.above), with information to help Operators make decisions about who should be scanned. If there is any doubt about the safety of scanning a subject, do not scan.

2. ***Controlling access to the magnet room.***
Center policy is that no one, except the experimental subject, should enter the magnet room unless they have been through the safety training lecture and passed the online test. It is the Operator's **responsibility** to ensure that others, such as members of the research team, who have not been safety trained do not enter the magnet room. In addition, it is the Operator's **responsibility** to minimize the number of people present in the magnet room to just those essential for the experiment (see **Section A.5.**).

3. ***Controlling equipment brought into the magnet room.***
No equipment should be brought into the magnet room unless it has been specifically checked and carries an approval tag from the Center. Even with approved equipment, always put the equipment in place before the subject is put on the table. Equipment approvals should be arranged well before the day of the experiment. Please coordinate equipment approval with Kun Lu (kunlu@ucsd.edu), the MRI Physics Lab Manager. (See **Section A.4**.)

4. ***Ensuring that the scanning session ends on time.***
The research team should be completely out of the magnet room and the control room by the end of their scheduled time. The time booked on the Webschedule is the total time for access to the scanner - not for actual scanning - and time should be allocated for clean up. Remember that the next group is paying for time as soon as their time slot begins. (Note: you cannot always trust local clocks to be precise—the schedule refers to true time). At the end of the experimental session, the Operator is responsible for ensuring that any adjustments to what was originally scheduled (e.g., a change of operator, or extending the session into un-booked time) are accurately reflected on the Webschedule program. The Center reserves the right to audit usage of the scanner and bill for unscheduled time that has been used. Any changes that cannot be made directly by the Operator should be emailed to the IT Manager.

5. ***Ensuring that the control room and magnet room are left clean and neat and in the standard configuration.***
This includes picking up laundry, making sure all cables are connected in the standard way, projectors are turned off, and in general leaving the area in the defined default state so that everything is the same each time a group arrives. The Operator is responsible for ensuring that no equipment is borrowed from the other scanner. In addition, the operator is responsible for ensuring that the control room doors (with keypad locks) are **not** propped open.

6. ***Escorting subjects from the CFMRI building when the scanning session is complete.***
The Operator is responsible for ensuring that all subjects are escorted out of the CFMRI building upon completion of the scanning session.

7. ***Reporting problems.***
The Operator should report any technical problems through the CFMRI Webschedule web page when they occur. Reimbursement for time lost due to scanner problems is contingent on a report being filed when the problem occurs. In addition, any other problems encountered (e.g. the room is a mess, cables are missing, failure of the previous group to finish on time, etc) should be reported through the Complaint Page on the CFMRI Webschedule.

8. ***Scanning on weekends, holidays or after hours (8 p.m. – 8 a.m.)***.
Scanning at these times carries additional responsibilities because the Operator may be alone in the building, without support from Center staff. Accordingly, scanning at these times should only be done by experienced Operators after consulting with Center staff. The Operator must ensure that the

outside doors are **not** propped open and that they are locked when leaving. The Operator must escort the subject out of the CFMRI building upon completion of the scanning session.

9. *The Equipment Room.*

Operators should not touch any of the hardware in the back equipment room. If the scanner fails to scan when Center personnel are present report the problem to Center personnel. When center personnel are **not** present at the center, the Operator should cancel the scanning session and report the problem on the Webschedule immediately (including notification to future users of the status of the scanner). The Operator should NOT call GE Service.

10. *If an object is pulled into the magnet.*

   a. If there is a serious or life threatening human injury that is being exacerbated by the continued presence of the object (e.g., if the subject is pinned by the object) then

- Hit the quench button
- Assist the subject as best you can
    - Call 911 from a Center phone (campus police will then coordinate with the appropriate emergency services). An emergency call list is posted in each control room and should be used.

   b. If there is serious or life threatening human injury that is NOT being exacerbated by the continued presence of the object (i.e., the object struck a person but then lodges out of the way), then do **NOT** hit the quench button, but assist the subject as best you can, and call 911. An emergency call list is posted in each control room and should be used.

   c. If the object did not seriously injure a person, but is lodged in the scanner, and CANNOT be removed easily and safely with ONE hand, then find Center personnel to help remove the object and assess damage.

   d. If the object CAN easily and safely be removed with ONE hand (i.e., a paper clip, small hair clip or small piece of jewelry), then it is permissible to remove the object, check for injuries, assess the scanner, and report the incident.

C. PI-related Policies

1. Parking

Please refer to the Center's separate Parking Policy
http://cfmriweb.ucsd.edu/pdf/CFMRIParkingPolicy0211.pdf

2. Informing subjects about the time and place of their scan.
The PI should give clear instructions and directions to their subjects. PIs/Operators should be at the Center before their subject arrives to ensure that they get the correct Parking Permits from the Center Admin. Office. Make sure that each subject knows the name of the PI and/or designated Operator so that Center Admin Staff can connect the subject with a scheduled time slot if necessary.

3. IRB or IACUC approval
A copy of a current IRB or IACUC approval must be on file for each project and it is the PI's responsibility to ensure that this is done. To use accumulated pilot hours for a project after the initial IRB or IACUC approval has expired, the PI must obtain a new approval and email it to cfmri@ucsd.edu.

4. Check website regularly for updates
This is the best way to check on the status of the systems at the Center.

APPENDIX: Frequently Asked Questions (FAQs)

These FAQs are designed to help you understand the Center's policies and avoid confusion and misunderstandings.

1.   My total scan time is one hour; should I only book the scanner for one hour?

No. The time booked on the Webschedule is the total time required for accessing the scanner and control room, not just time for the actual scanning. Time should be allocated for set up and clean up before and after the actual scan. The research team should be out of the magnet room and the control room by the end of their scheduled time. Remember that the next group is paying for time as soon as their time slot begins.

2.   If I only want to set up a protocol or scan a phantom, do I still need to book time?

Yes. Scan time used for setting up protocols or scanning phantoms is typically booked using pilot hours, which are credited to the project based on the number of paid hours. The purpose of providing pilot hours is to help researchers deal with the various steps associated with obtaining useful data, such as setting up protocols, optimizing techniques and testing equipment, etc. These activities can sometimes be covered as part of the operator training process if such training is required for the research group.

3.   If the scanner is not booked, can I use the scanner without scheduling a time slot?

No. For UCSD reporting and safety purposes, all scans are required to be scheduled. Audits of scanner usage are periodically conducted to ensure compliance with this policy.

4.   If I experience a problem with the scanner or peripheral equipment, should I report the problem immediately?

Yes. You should always try to report the problem immediately through the online problem report page when it occurs. This will let Center personnel know of the problem and it can be addressed immediately, if possible. It also informs other users of the issue in case they need to adjust their scan plans. On those occasions when the operator does not recognize the problem at the time of the scan, the problem should be reported as soon as it is identified. Please keep in mind that any billing adjustments requested due to technical problems are contingent upon the problem being reported within 72 hours of the occurrence. In general, billing adjustments are unlikely to be made if a scan protocol is run to completion even if a problem was reported early in the scan session.