Section III: Emergency Procedures

1. CPR Requirements

It is a requirement of the MR Research Facility that all facility staff who will be conducting MR experiments on humans will be certified in Cardiopulmonary Resuscitation (CPR). We strongly encourage all PIs, their staff and students also be certified. For your convenience the MR Research Coordinator is a certified CPR instructor and usually offers classes once or twice a year. Please contact her for more details. (51393)

2. The Crash Cart

There is one crash cart located in Radiology. During the day it is located in Angiography and at night in the hallway between Cat Scan and Patient Holding.

3. Code Procedures

In order to know the status of the subject at all times, it is strongly recommended that the pulse oximeter be placed on the finger of every subject that goes into the magnet. This will provide you with a heart rate and oxygen saturation for the subject while they are in the scanner. **If the subject becomes unresponsive begin the code procedure as listed below.**

1. **Immediately remove the subject from the magnet room.**
2. **Dial 117 and state the following twice: "Code Blue MRI Center Research Harper Hospital"**
3. **Start CPR if you know how.**
4. When the code team arrives step out of their way.
5. Provide the code team with any information they may request regarding the subject if known.

Please note because our facility is located within a hospital environment all PIs, their staff and students must be inserviced on the hospital's emergency preparedness plan and environment of care yearly. Our Research Coordinator offers these inservices several times a year for your convenience (please contact her for details 51393).

4. Quench

The term "quench" is used to describe the rapid boil off of the cryogens that keep the magnet cooled and in a superconducting state. Cryogens are supercooled liquid gases. All our systems require liquid helium to keep them cool. Without cryogens, the magnet loses its magnetic field. Usually a quench is undesirable and is due to a malfunction within the system. In rare instances a quench may be necessary to free someone from the magnet if they have been accidentally struck by a projectile ferrous object and pinned to the magnet. In each control room there are boxes on the wall that enclose quench buttons that should be pushed in the event that the magnetic field must be manually run down.

When a quench occurs, either spontaneously or manually, you must evacuate from the magnet room immediately to avoid being overcome by the helium gasses should they not vent properly out of the room. If you are going to manually quench the magnet, make sure the door to the scan room is left open to avoid a vacuum forming which may seal the door shut. If the magnet quenches spontaneously, and you are unable to open the door, you must break the window between the control room and the magnet room in order to get the subject out of the room.

5. Projectile Injury

If a subject or staff member becomes pinned to the magnet by a ferromagnetic object, you must evaluate the situation quickly before taking any action. If the person is unconscious, bleeding profusely, at risk of losing a limb or extremity, or in severe pain, you must manually quench the magnet to bring down the field in order to release the object and the person. If the person is responsive and able to tell you they feel O.K., you may be able to leave them in the position until a service engineer can respond and ramp the magnet down slowly to avoid a full quench. If you choose the latter, and the person then loses consciousness, or their condition worsens, immediately quench the magnet manually. Keep in mind that the cryogens are expensive to replace so evaluate the situation carefully but never put cost above the life or well being of the person.

Once the person is released, get them out of the room and obtain medical help or begin the Code Blue procedure. Remember when in doubt it is always better to call a Code Blue than not.

6. Responsible Parties

Any time a patient is scanned, or any contrast agent or drug is administered to a human in the MR Research Facility a physician and/or nurse must be available to cover in the event of a medical emergency. If the PI is not a medical doctor, arrangements must be made to have a medical doctor and/or nurse available to respond for emergency purposes. If a designee of the PI is present with the subject, the designee must know how to reach the PI, or a medically responsible party, immediately in the case of emergency. The MR Research Facility will assume these arrangements have been made before the subject is scanned and will not be responsible for medical treatment of the patient other than proper emergency procedures, in the event of an emergency or adverse event.