

ROBARTS RESEARCH INSTITUTE

CENTRE FOR FUNCTIONAL AND METABOLIC MAPPING: 3T/7T MRI FACILITY

Standard Operating Procedure #210-01
Last Updated: July 28, 2008

Emergency Code Blue

1. Introduction

- 1.1 Research involving Magnetic Resonance Imaging (MRI) at high magnetic field strengths present unique hazards to both research subjects and individuals working within and around the MRI system. Consequently, the potential for serious personal injury is present due to the sheer size and strength of the static magnetic field along with the immense flexibility of the research system and associated peripheral hardware.
- 1.2 The static magnetic field in the 3T/7T MRI Facility is always present. It is important that all those entering the facility be aware of the presence of the field, as it cannot be detected by our person in any way, i.e. magnetic fields cannot be felt, seen, or smelt.
- 1.3 There exist dangerous and potentially lethal levels of electricity in both the 3T and 7T MRI systems. As such, it is important that all individuals working around the MRI systems be aware of the dangers and therefore knowledgeable as to the safety issues concerning electricity. Furthermore, current carrying cables, connections and junction points in the vicinity of the main magnetic field are particularly susceptible to damage due to the extreme Lorentz forces created through the normal operation of the system. Periodically, the effects of prolonged mechanical fatigue will result in breakage causing electrical arcing, sparking and high heat levels before the system can shut down. There therefore becomes a high potential for personal injury and the possibility of a fire being ignited.
- 1.4 As a result of the potential for serious injury, access to the 3T/7T MRI Facility is restricted, and requires permission. See SOP#100-01 "MRI Facility Access Approval Policy", and SOP#110-01 "MRI Facility Visitor Approval Policy".
- 1.5 Working within and around the high field MRI requires in depth training on safety and Standard Operating Procedures, and documented proof of other necessary training. See SOP#120-01 "Safety and Operator Training".
- 1.6 It is imperative that all personnel who are within and around the 3T/7T MRI Facility always keep in mind the potential safety risks, and act in accordance with the guidelines set out in the Standard Operating Procedures.

2. Code Blue – Cardiac Arrest

- 2.1 The 3T/7T MRI Facility has hospital Code Blue coverage. A Code Blue is defined as cardiac arrest. A Code Team is dispatched through the hospital switchboard and directed to the Robarts MRI if they are notified of a Code Blue emergency in the facility. It is important to note that the Code Blue coverage applies only to the 3T/7T MRI Facility. This area is defined as the lab space behind the secure access dark grey doors. Code Blue

coverage does NOT extend into the hallway or office areas surrounding the facility. In the event of an emergency in any other area, x88911 should be called.

- 2.2 The operator at the time of the incident is responsible for following the Emergency Code Blue Procedure set out below. If the operator is somehow compromised, one of the experimental support personnel must follow the Emergency Code Blue Procedure set out below. This procedure is very explicit and is posted on the wall next to the “LINK RELEASE” button and also next to the phone.
- 2.3 If it is noticed that someone within the 3T/7T MRI Facility is showing signs of cardiac arrest, or cardiac distress the Emergency Code Blue Procedure as set out below must be followed.

3. **Emergency Code Blue Procedure**

- 3.1 Dial 55555 – Inform the Switchboard Operator, “WE HAVE AN ADULT CODE BLUE AT THE ROBARTS MRI via THE 1ST FLOOR HOSPITAL ACCESS.”
- 3.2 The Code Team will need to obtain access to the building – PRESS the “LINK RELEASE” button on the wall next to the operator console.
 - 3.2.1 This will release the link access door for a 10 minute period.
 - 3.2.2 Any successive presses of the “link release” button will extend the unlocked period by 10 minutes from the time of the second press.
- 3.3 If possible, have at least one person wait by the Robarts link access door for the Code Team to arrive (the dark grey doors down the hall). You may want to get help (if possible) from other lab members who are nearby, at this time.
- 3.4 If the volunteer/patient is in the magnet, attempt to remove them.
 - 3.4.1 Unplug the cables at the back of the magnet.
 - 3.4.2 Either use the keypad to advance the bed out of the scanner, or
 - 3.4.3 Press the red EMERGENCY STOP button on the side of the bed, to unlock it and then pull the bed out manually using the handle at the end of the bed.
- 3.5 Transfer the volunteer/patient from the bed to the non-magnetic stretcher that is located within the magnet room at all times.
 - 3.5.1 Place stretcher next to the MRI bed.
 - 3.5.2 Lock wheels in place to avoid movement of the stretcher.
 - 3.5.3 Slide the person onto the stretcher.
 - 3.5.4 Unlock the wheels and raise the sidebars of the stretcher to prevent them rolling off.
- 3.6 If the volunteer/patient is not in the magnet, attempt to move them to the hallway near the CARDIAC ARREST CART and AED (Automated External Defibrillator).
- 3.7 Once the volunteer/patient is safely on the stretcher, remove them from the magnet room and bring them into the hallway near the CARDIAC ARREST CART and AED. Under no circumstances is the Cardiac Arrest Cart or AED to enter or go near the magnet room. It has many ferrous components, and devices may cease to work when in a peripheral magnetic field.
- 3.8 Carefully lower the stretcher and transfer the volunteer/patient to the floor. Apply first

responder principles until the code team arrives. Remove the AED from its mount on the wall above the Cardiac Arrest Cart, open it up, turn on the power and begin following the instructions at this time.

3.8.1 Do not perform mouth-to-mouth resuscitation; use the bag provided on the cardiac arrest cart by placing the narrow end of the mask over the person's nose and the wide end over the chin.

3.9 If you are unable to transfer the volunteer/patient onto the stretcher, apply first responder principles to them on the MRI bed until the code team arrives.

3.9.1 Do not perform mouth-to-mouth resuscitation; use the bag provided on the cardiac arrest cart by placing the narrow end of the mask over the person's nose and the wide end over the chin. The respiratory bag and mask are non-magnetic and safe to use in the magnet room.

3.9.2 Do not bring the AED into the magnet room as it contains components that may be ferrous or may not operate properly when in a peripheral magnetic field.

3.9.3 When the code team arrives, be sure they do NOT bring the CARDIAC ARREST CART into the magnet room, or any other metal equipment they may be wearing.

3.10 Notify the Facility Manager or Director, and UWO Emergency Dispatch (x88911), immediately following the incident. The facility staff must then file an appropriate UWO incident report of the situation.