



Western

Centre for Functional
and Metabolic Mapping

3T/7T MRI FACILITY

SOP Number:	140.04
Title	Emergency Code Blue

Revision Chronology		
Version Number	Date	Changes
140.01	28 July 2008	New
140.02	21 January 2013	Updated emergency procedures
140.03	27 October 2015	Review
140.04	28 May 2019	Review

Associate Director Signature: _____

Date: _____

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

Standard Operating Procedure #140.04

Emergency Code Blue

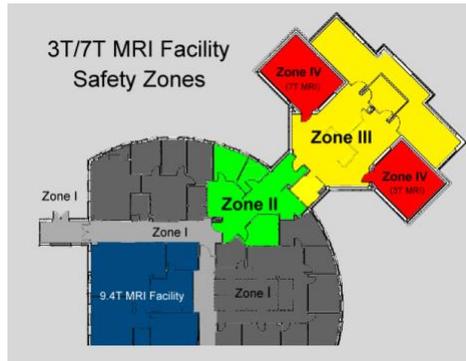
1. Introduction

- 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 magnitude 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 essential that everyone entering the facility is aware of the presence of the magnetic field, since we cannot otherwise detect it (i.e. magnetic fields cannot be seen or felt).
- 1.3 Dangerous and potentially lethal levels of electricity are used by both the 3T and 7T MRI systems. Therefore, it is important that all individuals working around the MRI systems be aware of the dangers and understand the safety issues concerning electricity. 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 may result in breakage, thereby causing electrical arcing, sparking, and high heat levels before the system can shut down. In these instances there is a high potential for personal injury as well as the possibility of a fire being ignited.
- 1.4 Due to the inherent hazards associated with the static magnetic field, access to the 3T/7T MRI Facility is restricted to ensure the safety of all patients, subjects, visitors, and staff. The 3T/7T MRI Facility is conceptually divided into four Zones of increasing level of potential risk and access restriction. See SOP#100a: "MRI Facility Safety Zones", SOP#100b "MRI Facility Access Approval Policy", and SOP#110 "MRI Facility Visitor Approval Policy".
- 1.5 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 A Code Blue is defined as a cardiac arrest (unexpected loss of heart function, breathing and consciousness).
- 2.2 The 3T/7T MRI Facility has LHSC Code Blue coverage. A Code Team is dispatched through the University Hospital switchboard and directed to the Robarts 3T/7T MRI Facility if they are notified of a Code Blue emergency in the facility.
 - 2.2.1 Note that the LHSC Code Blue coverage applies ONLY to Zones II, III, and IV of

3T/7T MRI Facility (i.e. beyond the 3T/7T MRI Facility door). Code Blue coverage does NOT extend into Zone I or elsewhere in Robarts Research Institute.



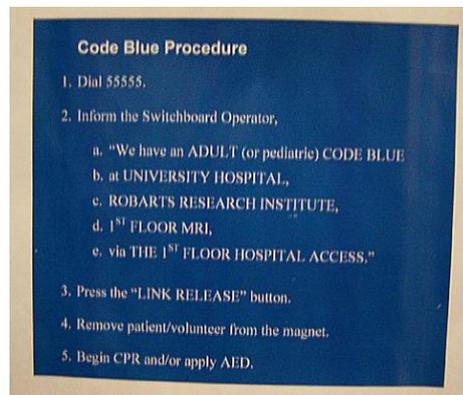
- 2.2.2 In the event of a cardiac arrest outside of the Code Blue coverage area, or of any other emergency within Zone III or IV of the 3T/7T MRI Facility, Campus Police/Emergency Dispatch should be notified by dialling 911 from any campus phone.
- 2.3 The Level 2 MRI Personnel present at the time of the incident is responsible for following the Emergency Code Blue Procedure as outlined below. If this person is somehow compromised, any other Level 1 MRI Personnel or Research Personnel present must follow the Emergency Code Blue Procedure. This procedure is very explicit and is posted on the wall next to the phone and “LINK RELEASE” button in the Patient Preparation area of the 3T/7T MRI Facility.

3. Emergency Code Blue Procedure

- 3.1 Dial **55555** and inform the Switchboard Operator:

**“ WE HAVE AN ADULT (or pediatric) CODE BLUE
at UNIVERITY HOSPITAL,
ROBARTS RESEARCH INSTITUTE
1ST FLOOR MRI
via the 1ST FLOOR HOSPITAL ACCESS. ”**

This script is posted on the wall next to the phone in the Patient Preparation area and should be recited exactly as written.



- 3.2 The Code Team will need to obtain access to the building – PRESS the “LINK

RELEASE” button on the wall in the Patient Preparation area.

- 3.2.1 This will release the link access doors, and the locked security access doors, for a 10-minute period.
- 3.2.2 Any subsequent presses of the “LINK RELEASE” button will extend the release period by 10 minutes from the time of the subsequent presses.



- 3.3 If possible, instruct another person to wait at the Robarts/UH link access door for the Code Team to arrive, and direct them into the 3T/7T MRI Facility. You may want to get help (if possible) from other lab members who are nearby at this time.
 - 3.3.1 If you are alone in the 3T/7T MRI Facility, or have no one to meet the Code Team, after pressing the “LINK RELEASE” button, take the orange pylons from on top of Crash Cart and throw them out the door and down the hallway. The Code Team will be looking for these pylons to help direct them to the location of the Code Blue.
- 3.4 If the volunteer/patient is in the scanner, attempt to remove them:
 - 3.4.1 Transfer the volunteer/patient from the MRI bed to the non-magnetic stretcher that is located within the Patient Preparation area by doing the following:
 - 3.4.1.1 In preparation for CPR, take the backboard hanging on the back of the Crash Cart, and place it on the MRI-compatible stretcher.
 - 3.4.1.2 Wheel the stretcher into the scanner room.
 - 3.4.1.3 Pull the bed out of the scanner using the keypad, or if necessary by pressing the red Emergency Stop button and manually pulling the bed out using the handle at the end of the bed.
 - 3.4.1.4 Remove any coils that are on the patient.
 - 3.4.1.5 Position the stretcher beside the MRI bed.
 - 3.4.1.6 Lock the stretcher wheels.
 - 3.4.1.7 Slide the person onto the stretcher using slider board.
 - 3.4.1.8 Unlock the stretcher wheels and raise the sidebars of the stretcher to prevent the person from falling off.
 - 3.4.2 Push the stretcher out of the scanner room and into the Patient Preparation area of Zone III, lock the wheels. Close the Scanner Room door behind you to prevent the Code Team from inadvertently entering Zone IV (magnet room).
- 3.5 If the volunteer/patient is not in the magnet, attempt to move them to Patient Preparation area of Zone III beside the CARDIAC ARREST CART and AED (Automated External Defibrillator).

- 3.6 Under no circumstances is the Cardiac Arrest Cart or AED to enter or go near Zone IV (magnet room). It has many ferrous components, and its devices may not work when in a peripheral magnetic field.
- 3.7 Apply first responder principles (CPR) until the code team arrives. CPR is only effective if the patient is on a hard surface, so if the backboard isn't under the patient, transfer the person from the stretcher to the ground, or carefully roll the patient to one side and place the backboard under them.

- 3.7.1 Do not perform mouth-to-mouth resuscitation; use the Ambu 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.



Ambu Bag

- 3.7.2 If additional CPR-certified personnel are present, they may attempt to hook up the AED (remove the AED from its mount on the wall above the Cardiac Arrest Cart, open it up, turn on the power, and follow its instructions).
- 3.8 If you are unable to transfer the volunteer/patient onto the stretcher, or remove them from scanner, apply first responder principles to them on the MRI bed until the Code Team arrives.
 - 3.8.1 Do NOT perform mouth-to-mouth resuscitation; use the Ambu Bag provided on the cardiac arrest cart. This device is non-magnetic and safe to use in the magnet room.
 - 3.8.2 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.
 - 3.8.3 When the Code Team arrives, your first priority is to ensure the safety of everyone present. Therefore, ensure that they do NOT bring the CARDIAC ARREST CART into the magnet room, or any other metallic objects they may be wearing.
 - 3.8.3.1 Code Team members have been trained on the safety issues of the MR environment, and have completed MRI safety screening by LHSC; however, it is your responsibility to ensure that any Code Team members entering Zone IV (magnet room) are safe to do so.
- 3.9 Notify the Facility Director or Associate Director, and Campus Police/ Emergency Dispatch (911), immediately following the incident. The facility staff must then file an appropriate incident report documenting the event.