

SAFE WORK PROCEDURE (SWP)

Workplace: NeuRA Imaging Centre

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TASK/OPERATION:	Magnetic Resonance Safety – Access and Workflow (SWP05)		
Operating Procedure Developed by:	Director of Imaging and Senior Research Scientist User, with MRI Facility Committee		
Approved:	COO	Date:	31st January 2020
Reviewed by:	WHS & Clinical Consultant		
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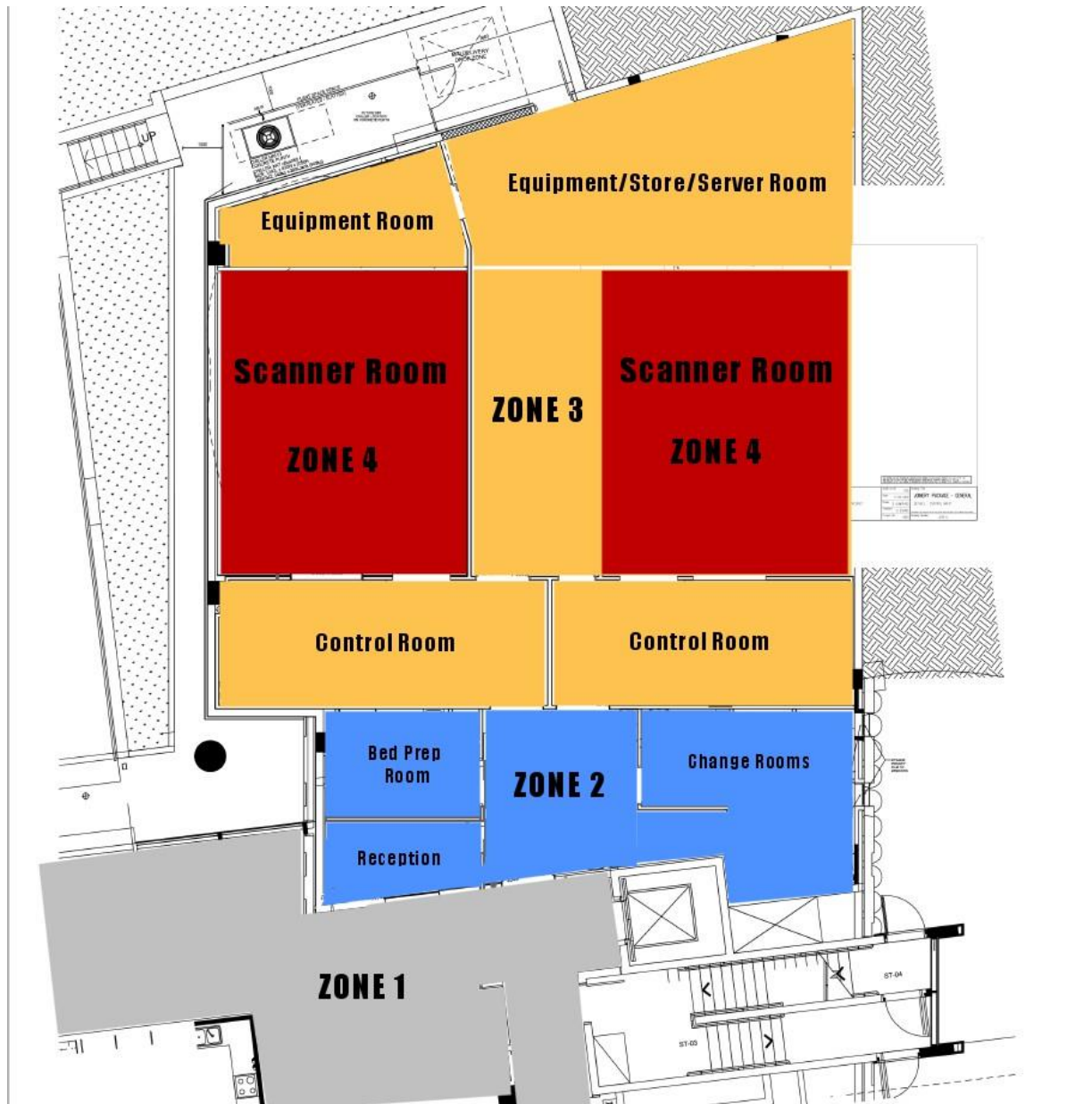
Purpose:

The purpose of this document is to outline the procedures associated with access to the Magnetic Resonance Imaging (MRI) facility and participant and researcher movements within the facility.

Rationale:

The Magnetic Resonance (MR) environment requires controlled access due to the risks associated with high magnetic fields. These risks are outlined in the 'MRI Scanning of Research Participant' Risk Assessment document, and include risks associated with acoustic noise, physiological responses to exposure to magnetic and radiofrequency fields, missile hazards associated with ferromagnetic objects within the static magnetic field, helium leaks, as well as risks associated with emergency events such as fires.

Map of the Facility including control zones:



Procedures:

Project Approval

- Research team secures Human Research Ethics Approval for the research project.
- Research team completes and submits NeuRA Imaging Scientific Management Panel Application, including NeuRA site specific agreement (SSA).
- Research team signs and submits Terms and Conditions.
- No access to the MRI facility (Zones 2-4) by the researchers is permitted prior to completing the NeuRA MRI Safety Training unless accompanied by MRI facility staff.

Safety Training of Researchers and Facility staff

- All research team members who enter the facility (zones 2-4) must have completed the NeuRA MRI Safety Training and provided a copy of the certificate to receptionist who will upload it into the Calpendo booking system. A researcher who has not completed this training will not be permitted to enter Zones 3-4.
- All research participants whom have provided written consent, must be accompanied for the duration of the research scan by a research team member who has completed the NeuRA MRI Safety Training.
- All research teams with non-ambulant participants must identify and organize equipment required for safe transfer 1 hour prior to the booked appointment time.
- All radiographers, facility staff and researchers (Levels 1-3 as outlined in MR Safety - SWP01) need to know the location of the emergency cart in Zone 3 which is NOT MRI Compatible and the emergency procedures in SWP04. This will be part of the MRI safety training.

Arrival at the facility

- The accompanying researcher and research participant arrive at the MRI facility least 15 minutes prior to the scheduled scan time, and advise the receptionist of their arrival. If contrast administration is required, the radiologist will need to be notified at this time. If the participants are non-ambulant, they will need to arrive up to one hour prior to their scheduled scan time so that the participant is prepared in time.
- The receptionist then confirms the participant's identity and provides the required MRI Safety Screening form.
- If no receptionist is present, the researcher uses the provided telephone to advise the radiographer of their arrival and awaits instructions. The radiographer will meet the researcher and participant, and will provide the MRI safety screening form for completion.
- The researcher is responsible for ensuring that all required participant consents for the research study are completed prior to the scan.
- If the scan commences outside usual NeuRA main reception operating hours (8:30am-5pm, Monday-Friday), the researcher is responsible for making arrangements for access to the main NeuRA lobby, signing the participant (and themselves) in and out of the NeuRA out of hours access log book, and arriving at the NeuRA Imaging facility 15 minutes prior to their scan time.

MRI Safety Screening

- All persons entering Zones 3-4 must complete the MRI Safety Screening form and have it reviewed and be declared safe to enter by the radiographer.
- Persons who fail the MRI Safety Screening process must not enter Zones 3-4 of the facility.
- All persons being scanned and all non-participants entering the scanner room (Zone 4), must complete the MRI Safety Screening form at each scan session. These will be stored with the project file.

- Researchers must complete the MRI Safety Screening form yearly, usually as part of the MRI Safety Training or annual refresher training, and must advise the facility staff any time there are changes to their answers to any of the questions on the form. These will be stored at reception for reference as required.
- In the event that a form is not signed they will be asked to sign it. Those that refuse to sign it will not be scanned.

Access to Zone 2 – Changing area, reception and preparation room

- Entry to Zone 2 is only permitted at the direction of the receptionist or radiographer, who will release the electronic door lock to enable entry.
- All research participants and accompanying non-participants must be accompanied into Zone 2 by a research team member who has completed the NeuRA MRI Safety Training.

Participant preparation

- Once inside Zone 2, the participant is advised on the required preparations for their scan, including any required change of clothing (which is done in the change rooms), and offered use of the toilet.
- The participant is advised to remove all electronic and/or metallic items from their person, including pockets.
- All personal items and clothing are to be stored in the supplied lockers.
- If the participant is being accompanied into the scanner room by a non-participant, the non-participant is also advised to remove all electronic and/or metallic items from their person, including pockets. Non-participants may also be required to change if their clothing is not MRI Safe.
- The researcher and participant then await instructions from the radiographer. Chairs are provided. Researchers and participants must not proceed into the MRI Control room until instructed to do so by the radiographer.
- Non-ambulant participants should be transferred and positioned, using the pre-organised equipment, onto the second MRI table in zone 2, ready to be docked into the magnet.

Access to Zone 3 – Control Room

- Researchers, non-participants, and participants may only enter Zone 3 (MRI Control Room) at the direct instruction of the radiographer.
- The radiographer reviews the MRI Safety Screening forms and clothing for the participant and any non-participants prior to entry to Zone 3.
- Once instructed to enter, researcher, participant and any non-participants move into the MRI control room and remain there until directed otherwise by the radiographer.
- Equipment: If the researcher is supplying additional equipment to be used in the scan, the equipment must be approved as part of the SMP application process and be MR Safe and meet all required safety and regulatory standards. See also “Process for Screening of Equipment to be used in the MRI Scan Room” document. The radiographer inspects the equipment prior to allowing it into the control room at each visit.

Access to Zone 4 – MRI Scanner Room

- The door to the MRI scanner room remains closed except when participants, researchers and MRI facility staff are entering or leaving the room.
- The radiographer confirms that the researchers, participant, and any non-participants have passed MRI Safety Screening, and verifies that they have removed all ferromagnetic and electronic items from their persons, and are safely attired prior to permitting entry to the Zone 4 (MRI Scanner Room)
- Researchers, non-participants, and participants may only enter Zone 4 (MRI Scanner Room) at the direct instruction of the radiographer.
- Researchers may only enter Zone 4 with MRI Safe research equipment after being instructed to do so by the radiographer
- Only approved MRI Safe wheelchairs, beds, and trolleys are permitted in Zone 4 (MRI Scanner Room). These must be clearly labelled as MRI Safe.
- Cleaners are not permitted entry to Zone 4.

Participant positioning in the MRI Scanner and experiment setup

- The radiographer ensures the required equipment and consumables are available and ready for the scan.
- MRI radiographer positions the participant and imaging coils on the MRI scanner bed, fits any required monitoring equipment, and fits the participant with approved hearing protection.
- If required, any additional approved equipment is set up by the researcher with the assistance and oversight of the radiographer.
- The researcher and/or radiographer instruct the participant on any required tasks or actions required during the scan.
- The participant is given the buzzer to alert the radiographer if required.
- Any non-participant or researcher that will be in the scanner room during scanning is fitted with approved hearing protection by the radiographer and given instructions for their role during the scan by the radiographer and/or researcher.
- The radiographer and any researchers not required to be in the scanner room during scanning leave the scanner room.
- The radiographer closes the scanner room door.

Scanning

- The scanner may only be operated by approved trained personnel.
- If a human participant is being scanned, the scanner must be operated by an accredited MRI radiographer.

Removal of participant from the scanner

- At the conclusion of the scanning procedures, the radiographer enters the scanner room, and removes the participant from the MRI scanner bore, removes the imaging coils, lowers the scanner bed and instructs the participant on safe exit from the scanner bed and then the scanner room.
- Researchers may enter the scanner room to remove equipment or assist with the participant removal only after receiving instruction from the radiographer that they may do so.
- All equipment related to the research scan must be removed by the researcher from the scan room at the conclusion of the scan session unless specifically directed otherwise by MRI facility staff.
- Any supplied equipment used, such as fMRI presentation equipment, must be returned to the default state by the researcher.
- The radiographer prepares the scanner for the next scan session.

Participant and researcher egress from the facility

- After exiting the scanner room, the participant is escorted back to Zone 2 (preparation and change area) to change (if required) and retrieve any personal items from the lockers.
- The researchers escort the participant out of the facility.
- The researchers remove all equipment and other research materials from the facility and arrange for data transfer with the radiographer.

Codes of Practice/Standards:

The Royal Australian and New Zealand College of Radiologists:

- [RANZCR MRI Safety Guidelines | RANZCR](#)
- [Quality and Standards | RANZCR](#)

Emergency Procedures:

- Magnetic Resonance Safety – Incidents (SWP03) <https://imaging.neura.edu.au/forms-policies/>
- Magnetic Resonance Safety – Emergencies (SWP04) <https://imaging.neura.edu.au/forms-policies/>
- NeuRA Incident Report & Investigation Procedure (WHS31)
[Work, Health & Safety - Policies - NeuRA Intranet](#)
- NeuRA Online Accident & Reporting Tool
[Injury & Incidents - Operations - NeuRA Intranet](#)
- NeuRA First Aid Procedure (WHS20)
[Work, Health & Safety - Policies - NeuRA Intranet](#)
- Follow NeuRA Emergency Procedures Flipchart 2018 located near the MRI control room phone or on NeuRA Intranet
[Documents & Forms - Operations - NeuRA Intranet](#)