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SECTION 1 - INTRODUCTION

PURPOSE
The purpose of this guideline is to provide appropriate procedures for ensuring the comfort and safety of participants in the MEG facility. This includes pre-scanning checks and handling procedures for when the participant is in the MEG scanner.

SCOPE
These guidelines for safe work instructions apply to participants undergoing an MEG.

DEFINITIONS

<table>
<thead>
<tr>
<th>Word/Term</th>
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<tbody>
<tr>
<td>MEG Facility</td>
<td>ATC 025 and 026 in the Neuroimaging Rooms in the basement of the Swinburne Advanced Technologies Centre (ATC). Refer MEG-09 Health and Safety Risk Assessment, 1.6 Floor Plans of MEG Facility</td>
</tr>
<tr>
<td>MSR</td>
<td>Magnetically Shielded Room housing the MEG scanner, designed to shield scanner from external environmental electromagnetic noise. Located within the MEG console room ATC 026.</td>
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<tr>
<td>Neuroimaging waiting room</td>
<td>ATC 025 in the Neuroimaging Rooms in the basement of the Swinburne Advanced Technologies Centre (ATC). Refer MEG-09 Health and Safety Risk Assessment, 1.6 Floor Plans of MEG Facility</td>
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CONTEXT

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## SECTION 2 - UNIT RULES

### UNIT RULES

#### 1. Greeting participants

1. The study investigator (who must have completed MEG safety training) will greet participants in the main foyer of the ATC building. They will escort participants to the MEG unit.
2. At the Neuroimaging waiting room they will be greeted by the senior MEG staff member.

#### 2. Pre-requisites before scanning can occur

1. Participants are to be informed that certain medical devices must be excluded from the MSR. These include cardiac pacemakers, cochlear implants, neuro-stimulators, certain metallic dental work, body jewellery and other metallic foreign objects implanted in the body. For an exhaustive list see MEG-14.
2. Before entering the MSR, all visitors must first "de-metal". This involves emptying pockets, removing jewellery, watches, wallets, beepers, hairclips and make-up (if appropriate) and leaving pens and clipboards etc. in the locker areas provided. The senior MEG scientist on duty will go through this carefully with the participant.
3. The senior MEG staff member on duty is responsible for screening the participant.

#### 2. Care and responsibility for participants within the MEG Facility

1. A senior MEG person will always be present during a participant’s scan
2. For research scans, at least one of the research project officers must also be present during scanning.
3. MEG equipment must be sanitised before and after each participant; any item that comes into contact with the participant must be sanitised or replaced.

#### 3. Preparation of a participant

1. It is the responsibility of the senior MEG staff member to prepare a participant for a scan.
2. Before each scan, the participants will be provided with a pre-scan information sheet. The MEG operator must explain to participants about the procedures of the scan.
3. The details of the experiment must be explained to the participant by the researcher.
4. Participants must have the opportunity to ask any questions and raise any concerns before the scan.
5. Participants have the right to stop the experimental scan at any point in time and must still receive compensation for their time, if applicable.
6. The senior MEG staff member must go through the MEG pre-scan questionnaire and consent forms with the participant and ask the participants to de-metal.
7. Participants must be informed of the nature and possible outcomes of the experiment and must receive a full debrief by the study investigator at the end of the experiment.
8. The senior MEG staff member on duty is responsible for ensuring the participants understand all the procedures and obtain consent from the individual.
9. Participants will be shown where the change room is to remove any metal objects and clothing from their person, they will also be shown where the lockers are to lock any personal items safely away. The study investigator (SUT senior MEG staff, SUT junior MEG staff, external researcher or external clinician) will be asked to look after the key for the participant.
10. In some circumstances individuals will need to be given a gown, i.e. when clothing has metal inserts, studs etc. Participants will be shown where the changing room and gowns are if they
are required to change.

4. **Lifting and handling of participants**

Heavy participants who are over 120 kg in weight will not be scanned due to manual handling difficulties if they need to be moved off the MEG trolley.

5. **Communicating with participants**

1. Participants must be in contact with the MEG operator throughout the duration of the scan. Two-way intercoms are provided to facilitate communication between the participant and the operator. The operator can also monitor the participant visually via a video camera link installed in the MSR.
2. If the participant is not comfortable with the scanning procedure or experimental paradigm, they may stop the scan at any time.

6. **Handling participants with a mental health condition**

The following guidelines are recommended for the handling of participants with mental health conditions:

**Prior to scanning:**

The ability of referring psychologists, physicians, radiologists, and MEG technologists to detect participant distress at the earliest possible time, to discover the source of the distress, and then to provide appropriate intervention can greatly improve participant comfort, quality of imaging studies, and efficiency of the MEG facility. Referring clinicians and/or researchers must take the time to explain the rationale for the MEG procedure and what he/she expects to learn from the results with respect to the implications for understanding the human brain, or treatment and prognosis. Importantly, the clinician must schedule time with the participant to communicate the results of the MEG procedure.

The single most important step is to educate the participant about the specific aspects of the MEG examination that are known to be particularly difficult. This includes conveying in terms that are understandable to the participant the internal dimensions of the MEG system and the estimated time duration of the examination.

Studies have documented a decrease in the incidence of premature termination of examinations when participants were provided with detailed information about the neuroimaging procedure. Accordingly, participants must be provided with an appropriate brochure or video presentation or online information webpage supplemented by a question and answer session with one of the Junior or Senior MEG personnel prior to the examination.

Many details of participant positioning in the MEG system can increase comfort and, thus, minimize distress. Taking time to ensure comfortable positioning with adequate padding and blankets to alleviate undue discomfort or pain is also important. Demonstration of the two-way intercom system or other monitoring technique to reassure the participant that the MEG staff are readily available during the examination is vital for proper participant management.

**During scanning:**

1. Prepare and educate the participant concerning specific aspects of the MEG examination (e.g., MEG system dimensions, intercom system, constant presence of the technologist etc.). This can include making a visit to the MEG scanning facility prior to the scanning date so the individual can familiarise themselves with the setup.
2. Allow an appropriately screened relative or friend to remain with the participant during the MEG procedure, or within close proximity, i.e. the console room.
3. Maintain verbal, visual, and/or physical contact with the participant during the MEG
procedure so that monitoring of mental state can occur.

4. All senior MEG staff will be trained in the implementation of relaxation therapy

Options for consideration during scanning:

1. Use bright lights inside of the MEG system.
2. Use vanilla scented oil or other pleasant smell.
3. Use relaxation techniques such as controlled breathing or mental imagery.
4. Use a sedative or other similar medication with clinician approval.

Post scanning:
If anxiety / claustrophobia / panic attacks have been experienced during an MEG scan provide appropriate debriefing and psychological counselling or referral if necessary. The Psychology Clinic will be able to run individual psychological interventions.

7. Handling of participants with braces and dentures

1. It will be explained to potential participants with heavy braces and dentures that the metal within them can cause reduction in the quality of data obtained. In such cases the data may be unusable for most clinical or research purposes.
2. If dentures or braces are causing distortion scanning will cease and it will be explained to participants why it is no longer fruitful to continue their scanning session.

*NB Updates will be provided as and when other groups who need to be treated with caution are included as possible candidate participants for research projects at SUT. As identified in MEG -09 these are participants who:

1. are non-ambulatory;
2. are unable to communicate (deaf, non-English speaking, unconscious, neonate, sedated, sleeping);
3. are at risk of epilepsy;
4. are young children (<12 years old);
5. are elderly (>65 years old);
6. are prisoners;
7. are under sedation or anaesthesia;
8. have taken certain medications - beta blockers, calcium blockers, vasodilators, diuretics;
9. are under IV therapy.

SECTION 3 - RELATED MATERIAL

Related Material

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<tr>
<th>Name</th>
<th>Location</th>
<th>Document Type</th>
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<tr>
<td>MEG Pre Scan Information, Questionnaire and Consent MEG -13</td>
<td>MEG Reception &amp; Facilities Office / Electronic</td>
<td>MEG SOP</td>
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SECTION 4 - GOVERNANCE
RESPONSIBILITY

<table>
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<th>Owner</th>
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VERSION CONTROL AND CHANGE HISTORY

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<tr>
<td>R1</td>
<td>18.01.2012</td>
<td>Susan Rossell (MEG Principal)</td>
<td>First released version prepared by Will Woods, Angela McKellar &amp; Susan Rossell</td>
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