Mental Health Justice Health Alcohol and Drug Services (MHJHADS)
Standard Operating Procedure
Electroconvulsive Therapy (ECT) Guidelines

Purpose

The purpose of this Standard Operating Procedure is to outline the matters for consideration when a decision to administer ECT is made. These include the indications, the legislative framework, required documentation, the preparation of the patient, the method of administration, the roles of the psychiatrist, anaesthetist and ECT nurse and supervision of psychiatric registrars.

Scope

This Standard Operating Procedure (SOP) pertains to all mental health services staff within the Division of MHJHADS involved in prescription or provision of ECT. This SOP refers mainly to the patient group adults only and may refer special patient populations such as adolescents or pregnant women.

Procedure

1. Indications for ECT

The principal indications for ECT are:

- Major depressive episode
- Manic episode
- Schizophrenia and related disorders (schizophreniform disorder, schizoaffective disorder) – especially with short duration of positive symptoms
- Catatonic states

Although ECT is more commonly used when other treatments have proved to be unsuccessful ECT should not be seen as a treatment of last resort and can be used even as a primary treatment in situations such as:

- Delusional depression (especially in the elderly where there is up to a 95% efficacy rate in some studies)
- Catatonia
- Depressed patients who are not eating or drinking adequately
- Depressed patients who are actively suicidal patients and need the quickest response
- Patients with a previous good response to ECT for the same condition
- Patient preference (if ECT is clinically indicated)

In the case of special patient populations such as adolescents or pregnant women the seeking of a psychiatric second opinion (even in patients with voluntary legal status) may
prove to be a useful strategy but should be up to the discretion of the treating psychiatrist (except where involuntary legal status occurs when it is mandatory).

Rarely ECT may have a role (due to its dopaminergic and change in seizure threshold effects) in treating certain medical conditions when standard management practices have failed. These include:

- Neuroleptic Malignant Syndrome (provided antipsychotics are ceased before hand)
- Intractable Seizure Disorder (due to its anticonvulsant properties ECT may be effective in status epilepticus or intractable complex partial seizures pharmacological measures have proved unsuccessful)
- Parkinson’s Disease (benefit to motor symptoms independent of effects of ECT on psychiatric symptoms)

2. Prescription of ECT

The decision to recommend and implement ECT lies with the treating team of the given patient (including the psychiatrist responsible for the care of that patient) and should be based on a careful assessment of the risks to and potential benefits for that individual. There should be a clear documentation in the patient’s continuation notes of the decision to embark on ECT and this should include the treating team’s recommendation in terms of bilateral versus right unilateral (or other e.g. bifrontal) electrode placement and frequency of treatments (usually two or three times a week except for ‘continuation’ or ‘maintenance’ ECT). A preformatted sheet, titled ‘ECT Prescription Form’ (Attachment A), is to be completed by the psychiatry registrar (or consultant) of the treating team and containing the following information:

- Psychiatric diagnosis and indication for ECT
- Significant medical conditions
- Current medication
- Cerebral dominance
- Legal status (i.e. voluntary vs. involuntary)
- Preferred electrode placement
- Recommended frequency of treatments
- Previous ECT (and if known seizure threshold / dose charge used with most recent course of ECT + any special precautions)

This form should be placed within the ECT section of the patient’s notes with a coloured cardboard marker to notify this section / folder.

3. ECT and the Mental Health (Treatment and Care) Act 1994

Under Section 54 of the Act, informed consent is defined and must be given prior to voluntary administration of ECT.

Under Section 55A ECT may be administered to a person who is not the subject of a Psychiatric Treatment Order (i.e. a voluntary patient not subject to a Psychiatric Treatment Order) if the person gives informed consent and has not had ECT administered on 10 or more occasions since the consent; and the consent has not been withdrawn.

Under Section 55E, ECT may be administered to a person subject to a Psychiatric Treatment Order if there is an ECT order in force and the person has not had ECT administered on 10 or more occasions since the ECT order was made. If the ECT order states that the person had capacity to consent to the order and gives informed consent and has not withdrawn that consent either orally or in writing the ECT may be administered.
Under Section 55F, the Chief Psychiatrist or a doctor may apply for an ECT order if a Psychiatric Treatment Order is in force in relation to the person and the Chief Psychiatrist or doctor believes on reasonable grounds that ECT is likely to result in benefit for the person and either all other reasonable forms of treatment available have been tried or ECT is the most appropriate treatment reasonably available.

Under Section 55J, an offence is committed if ECT has been administered on 10 or more occasions since the ECT order was made.

Section 55L, M, N and O make provision for the administration of emergency ECT. Application is to be made jointly by the Chief Psychiatrist and a doctor in respect of a person who is at least 16 years old and has a mental illness and ECT is necessary to save the person’s life. A Psychiatric Treatment Order must be in force in relation to the person and an application for an ECT order (in addition to the application for emergency ECT) must be made. An order for emergency ECT must state that ECT can be administered to the person for a maximum of up to 3 treatments and the order will expire not more than 7 days after it is made.

Section 57 states that a doctor must record the administration of ECT and under Section 58, ECT records are to be kept for a minimum of 5 years.

4. **Electrode placement**

Although strong consideration of a preference for right unilateral electrode placement is recommended in most cases (to minimise cognitive side affects) the choice of electrode placement lies with the treating team (and discussion with the given patient). There may be some circumstances, however, where bilateral (or other e.g. bifrontal) electrode placement is indicated due to psychiatric, medical or anaesthetic issues in the patient’s presentation and the treating psychiatrist’s preference needs to be respected. If there is disagreement between the treating team psychiatrist and the clinician performing the ECT with regard to this issue informed discussions should follow in an attempt to reach a decision which is in the best interests of the patient.

5. **Stimulus titration method versus age or age hybrid methods.**

It is recommended that strong consideration be given to the stimulus titration method (as described in “A method of ECT Dose Titration” - Attachment B) for most patients. This consists of titrating the charge up from recommended starting levels (based on age and gender) until the stimulus threshold is reached and then to increase by three levels for unilateral and one level for bilateral. The other methods may result in an appreciable number of patients either being inadequately (especially with RUL electrode placement) or excessively treated (especially with bilateral treatment). Inadequate treatment may result in no clinical benefit for that session and excessive treatments may be associated with increased cognitive adverse effects. The rationale for this recommendation is that evidence suggests that the treatment seizure needs to be 50% above seizure threshold for bilateral and at least 150% above seizure threshold for unilateral to achieve optimal clinical efficacy. The stimulus delivered may need to be increased during the course of ECT based on EEG tracing characteristics / parameters, clinical progress and occasionally anaesthetic issues. The ultimate decision regarding these matters however lies with the treating team and there will be occasions where the age or age hybrid methods are indicated (e.g. where due to a cardiac condition the risks associated with the autonomic response to ECT render the titration method unacceptable).
6. Preparation of a patient for ECT

The responsibility for the preparation of a patient for ECT lies with the treating team. A checklist (see Attachment C) is to be used to facilitate this process. An awareness of and vigilance for high risk co morbidities is vital. These include: bradycardia and bradyarrhythmias, poorly controlled hypertension, myocardial ischaemia especially recent myocardial infarction, CVA (depression associated with severe stroke may respond to ECT), raised intracranial pressure, epilepsy, Addison’s disease, phaeochromocytoma, thyroid disease, diabetes, electrolyte abnormalities, severe osteoporosis, obstructive airways disease and asthma, unmanaged urinary retention, skull defect and severe oesophageal reflux.

An appropriate appraisal of the patient’s medical status and current medications (including noting whether the patient is charted for benzodiazepines or anticonvulsant mood stabilizers) is an integral part of preparing a patient for ECT. It is essential to be aware that benzodiazepines are potent anticonvulsants and increase seizure threshold, inhibit seizure propagation and alter the neurobehavioural effects of ECT and as such should be avoided if at all possible during a course of ECT. Even the so-called non-benzodiazepine hypnotics, zopiclone and zolpidem, act on benzodiazepine receptors and although short acting are also powerful anticonvulsants. If these are used the night prior to an ECT treatment it is recommended that no more than a half to one tablet be given and that this occurs prior to 10pm.

Consent is a very important issue. Even though scientific evidence supports that ECT can be a valuable and on occasion life-saving treatment there are still public perceptions that it is an abhorrent and cruel practice that should be banned and this has led to misinformation which may need to be corrected in the process of obtaining consent. It is recommended that both verbal and written information be provided to the patient. It is recommended that the treating team consider involvement of the family or significant others (if this is the patient’s wish) in the discussion about potentially embarking on a course of ECT. Advice provided should include a caution about driving a motor vehicle, using heavy machinery, making major life decisions, entering into business arrangements or signing a contract within 24 hours. It is also important to suggest that patients make provision for the possibility that they there may be the inability to recall important information such as PIN details or phone numbers. Access to an educational video on ECT for patients is likely to be helpful. The treating team is to inform the patient that consent can be withdrawn at any time. Although the responsibility of obtaining and documenting consent lies with the treating team, signed consent forms (or valid involuntary treatment orders) need to be checked prior to each ECT treatment by ward nursing staff preparing the patient for ECT, the ECT and theatre nurse and the psychiatrist or delegate performing the ECT in the operating theatre (or procedures room) on the day of ECT. Following a course of nine ECT treatments written consent needs to be renewed if further ECT is being contemplated. In the event of involuntary legal status further Mental Health Tribunal authorization is required if more than nine treatments are needed.

The responsibility for making sure that a clinician (preferably both a registrar and consultant but at times there may only be one of these present) is available for the carrying out of each ECT treatment on their patient lies with the treating team (in liaison with the ECT nurse / coordinator). This might be facilitated by the drawing up by the treating registrar in conjunction with other registrars of a weekly or monthly roster. For the initial ECT treatment

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session using the titration method the attendance of a psychiatrist or experienced registrar is required.

7. Administration of ECT
ECT is to be delivered by a psychiatrist or psychiatry registrar. This registrar may administer ECT unsupervised if sufficiently experienced but in the case of more junior staff adequate supervision (either by a consultant or a more senior registrar) must be provided. In accordance with the mandatory “5 step policy” for procedures the following are necessary:

1. Verification that consent has been provided or in the circumstances of involuntary legal status that the MHT has granted authorization. This involves sighting the documentation of written consent or MHT order by ward staff prior to patient being transferred to theatres or procedures suite, theatre staff, the ECT coordinator and the psychiatrist / psychiatry registrar involved
2. Checking the indicated electrode placement (and charge dose) for the given patient
3. Verification of the correct identity of the patient who has been prescribed ECT is to take place in the ward prior to transport to theatre / procedures suite and in the anaesthetic bay or operating theatre / procedures suite prior to the commencement of the anaesthetic
4. After the patient has been anaesthetized all members of the ECT team are to stop and conduct a final verification of the correct patient identity, electrode placement and the charge dose.

Note: The 5th step in the “5 step policy” i.e. diagnostic imaging data is not relevant to ECT.

8. Documentation and Monitoring process during the course of ECT
The following information should be recorded on the patient’s file immediately following each ECT treatment:

- Patient’s name*
- Date*
- Number of ECT treatment just given (e.g. 3rd) *
- Clinician(s) delivering ECT
- Anaesthetist(s)
- Charge used (in % energy)*
- Electrode placement (BL, RUL, Bifrontal or other)*
- Anaesthetic agents used*
- Duration of motor and electrical seizure*
- Brief note whether seizure was well modified or not
- If poor seizure parameters or no seizure - recommendation of charge (and/or electrode placement) for next treatment (if appropriate – this may need to be discussed with the treating team in the case of change of electrode placement)

A separate ECT register should be kept by the ECT coordinator recording items asterisked above.

The monitoring process should include clinical appraisal and documentation in the progress notes of any side effects present after any ECT treatment (this is the responsibility of the treating team) with special emphasis given to neurocognitive side effects. Also recommended is a regular review of EEG tracings by a consultant or senior registrar with
some degree of expertise in ECT and that if good prognostic EEG parameters are not present consideration be given to increasing the size of the charge (or possibly alternative electrode placement) for the ensuing ECT treatments. The patient’s clinical notes should also reflect the general clinical trajectory of the patient in terms of the symptoms or mental state examination findings which constituted the original indication for ECT.

EEG tracings are to be cut into sections, mounted in sequence on a page (similar to what is done to ECG tracings) and then entered into the patient’s file in the ECT folder section so that they may be scanned into the CRIS electronic record for future reference. If paper patient records are kept the mounted tracings may need to be photocopied as the originals are likely to fade with time.

9. Venue for ECT
ECT is to be administered in a designated site that provides a suitable environment (including the availability of resuscitation equipment). Preferably there is to be a minimum of three areas – a waiting room, treatment room and a recovery room. The treatment room may be an operating theatre or other (e.g. a procedures suite). Equipment, medications and up to date protocols for the management of cardiac arrest, anaphylaxis and malignant hypothermia are present.

10. Maintenance of ECT equipment
Regular maintenance of the Thymatron (or alternative machine) by the bio-medical department of the corresponding hospital is indicated. Consumables such as ECT paper and other items should be ordered in advance by the ECT coordinator / nurse and always be available on the ECT trolley.

11. Director of ECT or psychiatrist supervising ECT
There should be a designated psychiatrist who leads ECT and this psychiatrist is to have dedicated sessional time for ECT. He / she should have training and experience in the delivery of ECT and be possessed of a degree of technical mindedness. This psychiatrist has responsibility for regular attendance at ECT treatments, the development of treatment protocols, training, supervision and support of clinical staff, provision of advice to other health professional including giving second opinions in the case of involuntary legal status and special patient populations such as pregnant women or adolescents, audit and quality assurance programmes to ensure ongoing optimal practice of ECT and continuing professional development (including keeping abreast of advances and controversies in the field).

12. The role of ECT nurse
There should be a nominated / designated ECT nurse at all times who also attends ECT training sessions to continually update her / his knowledge. He / she is responsible for ensuring maintenance of ECT equipment, stocking of necessary items for the delivery of ECT and for the nursing care / management of the patient in aspects that pertain to the preparation for and the delivery of ECT and the immediate after care (including ensuring that the patient’s medical file and medication chart accompany him / her to theatre or procedures room). She / he is to play a coordinating role and maintain close and timely communication with other members of both ECT team, the treating team and ward, theatre and recovery room clinical staff. The mounting or photocopying of EEG tracings and placement of these in the patient’s file is also to lie within the role of the ECT nurse.
13. Supervision
Supervision is a very important aspect of best practice for delivery of ECT both to maximise the care of and optimal results for the patient and also to provide support and training for the registrar and other staff involved. It is a college requirement for psychiatric trainees to receive supervision in ECT. In addition to practical “hands-on” supervision during service delivery seminar teaching sessions as part of training were seen as useful in addition to a regular annual workshop by experts in the field (again including both theory and practical aspects).

14. Anaesthetic issues
1. Administration of anaesthesia for ECT follows best practice recommendations
2. Choice of inducing agent (e.g. thiopentone vs. propofol) is the prerogative of the of the anaesthetist but it is recommended that if possible for a given patient the same agent be used all the way through a given course of ECT as this is less likely to cause variability in seizure properties (e.g. threshold and duration).
3. The preparation and management of a highly agitated or violent patient may need to be discussed with the anaesthetic staff especially in terms of what pharmacological agents are to be used in this situation that minimise interference with either the seizure or the administration of the anaesthesia.
4. In the event of a prolonged seizure (i.e. a seizure lasting more than 120 seconds) the anaesthetist is to be involved in terminating this with the agent of his / her choice (e.g. thiopentone)
5. The use of mouth guards is seen as important and as the responsibility of the anaesthetic staff although psychiatric staff present should be vigilant that this is not overlooked.
6. If during the preparation of a patient for ECT that there were queries about the fitness for anaesthesia of given individual either a phone call to the anaesthetist on duty or a formal consult may be needed.
7. If the titration method is being used there may be several charge deliveries on the first ECT treatment which don’t result in a seizure. Therefore the anaesthetist needs to be communicated with and alerted to this possibility prior to the commencement of the anaesthetic as a higher dose of suxamethonium or a second dose of same may be required.
8. Non-depolarising muscle relaxants are relevant in pseudocholinesterase deficiency, hyperkalaemia and diffuse muscle membrane dysfunction e.g. NMS
9. For interested mental health staff especially those involved in the delivery of ECT, perusal of current literature reviewing anaesthetic issues pertaining to ECT is encouraged as it may help liaison and interfacing with anaesthetic staff.

Evaluation

Outcome Measures
- Incident reporting via Riskman
- Compliance with SOP

Method
- Annual ECT Consent Audit
- Incident Reporting via Riskman and then review, as required, through the Clinical Review Committee will be used to identify any compliance or system issues in relation to this SOP and ECT
## Related Legislation, Policies and Standards

### Legislation
- Mental Health (Treatment and Care) Act 1994

### Policies
- Consent to Treatment Policy and SOP
- ECT SOP for Adult Mental Health Unit

## References

1. Electroconvulsive therapy – An Australasian Guide 2003 Edited by Professor JWG Tiller and Dr RW Lyndon.
3. RANZCP college statements – Clinical memorandum 12 (Adopted 1982; last revised 1999)
4. The ECT Accreditation Service – Standards for the administration of ECT – (2004) Royal College of Psychiatrists’ Research Unit (UK) Ed by Helen Caird and Adrian Worral; revised by Zoe Fortune and Joanne Cresswell
5. The Canberra Hospital ECT and Procedures Manual 2000 (Sydney University)
6. Lecture material and practical recommendations from workshops (2000 –2005) by Drs Bill Lyndon (psychiatrist) and Stuart Montano (anaesthetist)
ECT PRESCRIPTION FORM

Patients Name.................................................................
DOB.................................................................
Treating psychiatrist.................................................................
Legal status.................................................................

Psychiatric diagnosis and indication for ECT........................................

Significant medical history (including allergies and adverse drug reactions)........................................

Current medication (Note: Use of benzodiazepines and anticonvulsants may interfere with ECT response)

Cerebral dominance.................................................................

Preferred electrode placement.................................................................

Recommended frequency of treatments.................................................................

Details of previous ECT.................................................................

Date.................................

Signature.................................
# A Method of ECT Dose Titration

## Mecta vs DOSE Thymatron

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<th>Frequency (Hz)</th>
<th>Duration (sec)</th>
<th>Current (mA)</th>
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### Threshold Determination

- Start at level 1 for Female UL, Level 2 for Female BL, and Male UL, level 3 for Male BL as indicated in appropriate table column.
- Increase by one level if stimulus is necessary.

If no adequate seizure after 3 stimulations increase TWO levels for the fourth stimulus and if successful, drop one level for the first stimulus in the next treatment session to continue titration.

If no seizure after four stimulations, restart session and increase by one level for first stimulus at next session to continue titration.

### Successive Treatments

- After establishing lowest level needed to produce an adequate seizure increase by THREE levels for UL and ONE level for BL.
- Whenever further increases in stimulus are indicated increase by ONE for UL and ONE for BL.

### Criteria for Re-stimulation
- Poor EEG seizure morphology
- EEG seizure < 30s OR
- EEG Seizure < 20s if patient < 50 and treatment number > 6 OR
- EEG Seizure < 15s and two increases in stimulus energy in past week.

(*) Consider the following: morphological regularity, interhemispheric coherence, post-stim suppression, EEG amplitude, distinct slow wave, recognizable polyspike+wave pattern.

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**ECT PREPARATION CHECKLIST**

- Correct name and identity of patient and confirmation that this patient is to receive ECT
- Operating theatres (or other) booked
- Consultant / registrar arranged to deliver ECT (confer with ECT nurse / coordinator)
- Adequate medical (and psychiatric) evaluation of patient (medical or anaesthetic consults arranged if necessary)
- Investigations if necessary (e.g. FBC, ECG, CXR) – determined by age and medical status of patient
- Medication review (esp. benzodiazepines or anticonvulsants)
- Consent (for nine treatments if voluntary) and patient has been given information on procedure (if involuntary legal status consent for ten treatments – second opinion required and MHT to authorize)
- Fasting arrangements (including what routine medications e.g. antihypertensives will be taken on morning of ECT with sip of water)
- Dental status (e.g. loose teeth, dentures)
- Metal objects in hair (e.g. hairpin), hair spray, nail polish – not to be used

Attachment D

**Electro-Convulsive Therapy Consent – Clinical Form**

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