Western Health and Social Care Trust

Operational Policy for Electroconvulsive Therapy for Inpatients and Outpatients

8th October 2014

Western Health and Social Care Trust

Title:	Operational Policy for Electroconvulsive Therapy for Inpatients and Outpatients		
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Ownership:	Geraldine Brown – PCOP, Trevor Millar – AMHLD		
Approval by:	Trust Board	Approval date:	November 2014
Operational date:	December 2014	Next review:	December 2015
Version No:	0.16	Supersedes:	None
Reference No:	Corp15/001		
Links to other policies, procedures, guidelines or protocols:			

Version control for drafts:

This helps to identify where changes have been made to a document and ensure that authors/reviewers are using the most recent version.

• The first draft should be versioned as 0.1 with subsequent versions 0.2, 0.3 etc. When formally approved it will be issued as 1.0.
• Reviews will then be versioned 1.0.2, 1.0.3. Following second formal review the document will be issued as version 1.1
• If major changes are made to the document then it will be issued as version 2.0.

Date	Version	Author	Comments
08/10/2014	0.15	Stephen Moore	Now on Trust format
08/10/2014	0.16	Stephen Moore	Typos fixed

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1.0 INTRODUCTION / PURPOSE

1.1 Background

Electroconvulsive Therapy (ECT) has been used since the 1930s for the treatment of severe depressive illness and other severe mental disorders. The commencement of dual channel monitoring combined with stimulus dose titration ensures the safest and most effective delivery of ECT. Our ECT practice has developed over the years and will continue to be reviewed to ensure best practice. ECT remains among the most efficacious treatments for those with severe or treatment resistant mental illness.

1.2 Purpose

This policy and accompanying procedures aim to clearly identify the action to be taken in all instances of a patient requiring Electroconvulsive Therapy (ECT). This includes:

- The WHSCT ECT integrated care pathway (ICP)
- Guidelines for patient preparation at ward level
- Procedure for Electroconvulsive Therapy using The Spectrum 5000M
- Procedure for the Management of Problematic Treatments
- Procedure for ECT in the Elderly
- Procedure for ECT in people with learning disability
- Procedure for ECT in young people
- Procedure for maintenance/continuation ECT
- Procedure for discontinuation of ECT
- Guidelines for prescribing outpatient ECT
- Guidelines for ECT session management
- Guidelines for Medical Staff Administrating ECT
- Guidelines for Nursing Staff for ECT
- Regular review of ECT policies minimum of every 2 years.

This policy is to be read in conjunction with the following guidelines and policies:-

- Operational Guidelines for Consent in Mental Health Care.
- Infection Control Policy
- COSHH Guidelines
- Policy for Untoward Events
- NICE Guidance on the use of Electroconvulsive Therapy.
- ECT handbook 3rd Edition– Royal College of Psychiatrists.
- Mental Health (Northern Ireland) Order 1986.

2.0 SCOPE OF THE POLICY

This policy applies to all patients having electroconvulsive therapy in the Western Health and Social Care Trust.

3.0 ROLES AND RESPONSIBILITIES

The policy is jointly implemented between Older People's Services and Acute Mental Health, and its adherence and implementation is the responsibility of those working in the ECT service.

4.0 KEY PRINCIPLES

- All patients will follow an integrated care pathway (ICP)
- All patients will have dual channel EEG monitoring during each ECT treatment
- All non emergency ECT patients will follow the dose titration procedure
- Emergency ECT patients will follow the emergency titration procedure
- Written and verbal information will be given to each patient prior to the commencement of treatment with ECT, a copy of which is in the ICP
- All medical and nursing staff will receive appropriate training and be suitably qualified/experienced to their designated role
- All medical/nursing staff will be trained to ILS minimum
- Staff will have a knowledge of the legal status and consent of each patient prior to treatment and this will be recorded in the ICP
- All staff will follow the accompanying procedural guidelines and procedures for the delivery of ECT for Inpatients and Outpatients
- All patients will wear an identity bracelet during ECT treatment
- Outcome audit will be kept on all patients receiving ECT
- Equipment will be checked prior to treatment and records maintained
- The policy refers to both voluntary and detained patients
- This policy applies to all patients receiving ECT in the Western Health and Social Care Trust

- Training/Education sessions for staff will be provided/coordinated at ECT induction sessions.

4.1 Consultation

Consultant Psychiatrists
Mental Health Clinical and Social Care Governance Team
ECT Nursing staff
Theatre Staff in ECT locations

4.2 References

Mental Health (Northern Ireland) Order 1986.
ECT Handbook 3rd edition 2013 Royal College of Psychiatrists 2013
ECTAS Standards 10th edition (Dec 2012)
NICE Guidance on the use of ECT (update 2010)

4.3 Equality Statement

This policy has been drawn up and reviewed in the light of section 75 of the Northern Ireland Act (1998) which requires the Trust to have due regard to the need to promote Equality of opportunity.

This policy has been screened to identify any adverse impact on the 9 categories. Following consultation it has been agreed that the policy does not require an Equality Impact Assessment.

If at any stage of the life of the policy there are any issues within the Policy that are perceived by any party as conflicting with his/her rights, that party should bring these to the attention of the Director of Mental Health or raise a complaint to the Chief Executive through the published complaints procedure.

5.0 ECT BACKGROUND

5.1 Indications for ECT

The NICE guidelines reserve ECT for treatment in cases of severe depression, and it is usually used in those cases where a patient's life is at risk due to self-neglect or where other treatments have failed. ECT can also be used, under NICE guidance, as a treatment of last resort in severe mania with life threatening exhaustion.

ECT may also be prescribed due to patient preference, possibly due to a previous positive response.

ECT is relatively safe in pregnancy and may be used during pregnancy.

The Royal College of Psychiatrists does acknowledge the uses of ECT outside the limitations advised by NICE. Among these ECT has been used as a treatment for schizophrenia if Clozapine is ineffective, and as a treatment for Parkinson's. It has some potential role in treatment of neuroleptic malignant syndrome, Huntingdon's chorea and epilepsy. Use for these disorders is possible under this policy, but as described below **must** be discussed with the Consultant for ECT.

5.2 Guidelines for Patient Preparation at Ward Level

Patient Information

The patient will be provided with an ECT information leaflet (based on the fact-sheet in the RCPsych Guidelines Appendix 1), and staff will respond promptly to any further enquiry from the patient and, when appropriate, relatives. Outpatients will be supplied with appropriate information leaflets and given contact details to discuss any queries prior to treatment.

5.3 Consent

The following notes relate to the consent procedure in ECT using DHSSPS consent form 1. The Responsible Medical Officer for the patient is responsible for overseeing the process of obtaining consent for ECT before prescribing this treatment. Consent is usually obtained by a junior member of the medical team. It involves the following:

Explain what Electroconvulsive Therapy is, the reason for its use at this time, the desired benefits and any common or potentially serious problems that may arise.

Side Effect	Rate
Muscle pain	8%
Headache	33%
Memory problems	20%

Confusion or dizziness	5%
Nausea or vomiting	1-2%
Dental injury	
Death	2/100,000 over a 5yr period

- Explain how the procedure is carried out, including the need for LIGHT general anaesthesia.
- Explain the need for a course of treatments (of specified duration e.g. up to maximum of 12 treatments) if necessary.
- Ascertain any particular medical problems which may pertain to the patient and discuss how these may affect the treatment or lead to complications.
- Allow the patient to ask questions and clarify any queries they may have.
- Record any instructions that may reasonably pertain to the treatment that the patient gives.
- Obtain consent to retain the EEG recording for audit and teaching purposes, or document the refusal of consent
- Ensure that the patient has the capacity to consent to the procedure in that:
    1 The patient understands the information given.
    2 The patient can remember and retain that information.
    3 The patient can weigh up the information given and come to a decision.
    4 The patient can communicate their decision to the interviewer.
- Capacity assessment within care pathway must be completed by ward-team (usually Core Trainee) prior to each treatment
- Consent should be confirmed prior to each treatment by the Doctor who is administering ECT.

You are reminded that:

- You should read the patient's medical notes before starting the consent process and take into account any relevant information therein.
- Form 1 (see appendix 1) is a record that the consent process has taken place but not legal proof of the act of consent.
- The patient may withdraw their consent at any time.
- You should make full use of any information for patients pertaining to the treatment that has been provided by your hospital.
- The completed Consent Form 1 should be kept within the ICP
- Consent should be recorded separately in the patient's medical notes and a copy of form 1 also placed therein.
- Any problems with the consent process at any stage must be discussed with the patient's responsible medical officer.

5.4 Incapacitous Patient

Should the patient lack capacity for the procedure and it is felt by the treating RMO to be in the patient's best interest then they should be assessed under the Part 4

guidelines within the mental health order. Equally if a patient requires ECT treatment against their will a Part 4 opinion should be sought. It is legal to give ONE emergency treatment prior to the Part 4 opinion being available, and if this is done it must be recorded carefully in the care pathway and patient's notes. The consent over-ride in the patient's best interests should be documented using a consent Form 4, and discussing it with the next of kin would also be good practice.

5.5 ECT and NICE Guidelines

The referring psychiatrist must state that the referral for ECT is within NICE guidelines or indicate the reason for any exception.

Before ECT is prescribed outside of NICE guidelines, the referring psychiatrist **must** discuss the case with the ECT consultant.

The patient must be informed if they have been prescribed ECT outside of NICE guidelines.

All decisions and information discussed should then be clearly documented in the patient's notes/ ICP.

5.6 Clinical Global Impression

Clinical Global Impression (CGI) is a brief clinical impression of the patients overall clinical state prior to, during and after initiating treatment. CGI form must be completed before each treatment and after the course has been completed. This this is documented within the ICP.

6.0 ECT PROCESSES

6.1 Anaesthesia - Pre ECT Work Up

Safe treatment of the patient in the ECT Suite is the responsibility of the prescribing Consultant. The anaesthetist must be provided with FULL information;

1. Patient's current medical status
2. Previous medical history
3. History of adverse side effects/reactions to anaesthetic agents
4. Allergy or suspicion of the same, with as much detail as possible, e.g. Urticarial rash and wheezing in association with drug X.
5. Family history is relevant and should always be available. If the patient is not in a position to offer this then one should make attempts to discuss this with family/close friends and, of course, with any other treating doctor (especially the G.P).

For further details refer to the Appendices.

NOTE: If there is no relevant family medical history then this should clearly be stated, e.g. "No family medical history on enquiry".

It is the prescribing Consultant and / or ECT nursing team's responsibility to inform the anaesthetist of any disability and communication needs.

There will be instances when the opinion of an anaesthetist will be desirable prior to the day of treatment and this can be obtained by contacting the Anaesthetic Office at the South West Acute Hospital or the anaesthetic office in Altnagelvin.

All patients who have "systemic disease with functional limitations of life-style" should be referred in advance for an anaesthetic opinion/consultation.

For patients in the T & F, based on the patient's condition/risk, the Anaesthetist may have to consider whether administering ECT at TCH is the safest option. In such case he will inform the Anaesthetic Lead Clinician who would then coordinate with the Theatre Co-coordinator at the SWAH or Altnagelvin.

It is expected that all patients undergoing a course of ECT should have a Pre-Anaesthetic Assessment form filled in by the start of their treatment. In Altnagelvin this pre-anaesthetic assessment should be completed by the Anaesthetic Nurse prior to ECT. For patients in the T&F this may be carried out by the Pre-assessment Team at the Pre-assessment clinic at TCH, at the Tyrone and Fermanagh hospital or the anaesthetic nurse or it may be completed by telephone.

This process takes time and the Anaesthetic Pre-Assessment team needs to be informed about a client who will require ECT early to allow for investigations to be sent

to the labs and results correlated. There will be provision for emergency ECT when there may not be time for investigation, but this significantly increases the risk to the patient.

The Pre-assessment team should have ready access to up to date investigations. These must be completed by the referring team and the results available to the pre-assessment team. It is the responsibility of the patient's team to notify and up-date the team of any relevant developments, including the need for physical review and/or investigations during the course of treatment.

NOTE: If a patient has recently discontinued or had an abrupt change of dosage of any psychotropic agent, this should be clearly stated, especially with regard to MAOIs.

6.2 Pre-Treatment

Appropriate communication must be used to inform the patient of the requirements regarding general anaesthesia.

The patient should be fasted for >6 hours for solids and >2 hours for clear fluids

6.3 During Treatment

Current monitoring recommendations for the anaesthetised patient:

- Blood pressure
- ECG
- Pulse oximetry
- End-tidal CO2
- Respiratory rate
- Temperature

6.4 Post-Treatment

- Blood pressure
- Pulse oximetry
- ECG

6.5 Medication

- Review medications prior to commencing ECT course
- Omit night time sedation 24 hours before ECT
- If overweight or history of gastroesophagel reflux – commence Ranitidine 150mg bd if not already prescribed a similar preparation.

- Immediately prior to ECT omit all medications except those needed for cardiac conditions, asthma, and proton-pump inhibitors. Benzodiazepines and other anticonvulsants must be omitted. Anti-diabetic medication should be discussed with the anaesthetist prior to the day of ECT**.**

- Medication which is being administered prior to ECT should be given at 8am with a sip of water.

- Instructions should be made on the medicine Kardex and within the patients notes for the nursing staff to inform them which medicines should be given or omitted prior to ECT.

- If you are unsure seek advice from the anaesthetist involved in the administration of ECT.

6.6 ECT Care Pathway and List

- All relevant sections of the ECT Care Pathway must be completed before treatment.

- Book a place on the ECT list for the appropriate date.

- Patient's Named Nurse to make verbal contact with the Anaesthetic Nurse

6.7 Stimulus Dose Titration

- The aim of stimulus dosing is to determine the seizure threshold and to then give the treatment dose appropriate to the electrode placement.

- The determination of threshold is done at the initial session(s) and should be achievable using no more than three stimulations but may in exceptional cases require more.

- There is no current evidence of a minimum requirement for length of seizure in ECT. Evidence of seizure activity on both EEG and motor response is considered satisfactory. EEG alone may be acceptable, or motor response on rare occasions.

- If after the initial stimulus the seizure threshold has not been determined, a further 2 stimulations may be given if required on each treatment day.

- There should be at least a 20 second gap between each re-stimulation given.

- If there is a missed or absent seizure after the third stimulation continue to progress up the titration schedule on the next treatment day until the seizure threshold is achieved. For titration doses if it is necessary to use more than 2 doses then dose 1 then 2 then 4 would be used to titrate. If the patient has a seizure at dose 4 the on next treatment the dose level 3 should be tried first, before using 4 in the event of a failed seizure.

- If seizure threshold is not reached within three stimulations the treatment technique, anaesthetic agent used, previous medical history and concurrent medication should all be reviewed.

- If a third stimulation is required then a stimulus level should be skipped due to the effect of repeated sub-convulsive stimulation raising the seizure threshold. If the third stimulation results in an adequate seizure the patient should be stimulated with the skipped level's treatment dose. This should be at the next session. This is to determine whether this might be the real seizure threshold.

- If after three stimulations a seizure is not elicited, then stimulation should resume at the next session with the highest dose used in the last session.

- If switching from bilateral to unilateral, go to the next level on the unilateral table.

6.8 Emergency ECT

It should be discussed with the patient's consultant if an emergency procedure should be followed. Bilateral treatment should be given. Follow the emergency ECT procedure (Appendix 3).

7.0 PROCEDURE FOR ELECTROCONVULSIVE THERAPY USING THE SPECTRUM 5000M

7.1 Treatment

- Turn on the master switch at least 5 minutes prior to treatment to allow the Capacitors to charge fully.
- Routine maintenance tests should be performed and recorded.
- Establish if this is new treatment course. If yes select the appropriate stimulus level (Appendix 2) If no, continue the dose given the previous time unless a change of dose is communicated to the ECT team by recording this on the ECT ICP.
- Adjust treatment dial to the prescribed dose, by Medical Staff or appropriately trained Nursing Staff.
- Prepare the electrode sites with alcohol wipes.
- Attach EEG electrodes. Pad 1 is placed 1cm above mid-point of eyebrow and pad 2 on ipsilateral mastoid. Grey pads on the right and brown pads on the left. The green (grounding) pad is to be placed on clavicle or sternum.
- Perform EEG test strip, to establish a baseline before each treatment.
- The anaesthetist delivers the induction agent and muscle relaxant.
- The anaesthetist pre-oxygenates the patient and inserts disposable mouth guard.
- Cover electrodes with gel and place them according to the RCPsych guidelines. For Bitemporal placement place the electrodes 5cm above the midpoint of a line joining the outer canthus and the tragus of the ear. For unilateral ECT use the d'Elia position on the non-dominant side (determined by the consultant team). Press with firm, consistent pressure, with a slight oscillating rotation. See Appendix 8 for diagrams of electrode positions.
- The nurse checks that the impedance is within range and if within range then states "impedance within range" and the dose to be delivered.
- Doctor states "Delivering Stimulus" and presses the stimulus button on the handset. The button **must** be held down for the duration of the three beeps and the following tone, otherwise the treatment will be aborted.

- Observe for a seizure. A technically adequate treatment should produce a generalised tonic clonic seizure. Time the peripheral seizure activity from the end of the last tone until the end of obvious motor activity. Read the EEG print-out to determine the end of seizure activity (i.e. "three per second spike and wave" form on the EEG).

- To stop the EEG print out press the "Done" button on the *monitor*. This will enable the treatment parameters to be printed out automatically. Record peripheral and EEG seizure length and dose delivered within the ICP.

- Any problems encountered during the treatment must be recorded in the communication section of the ICP.

- Where it is unclear how long a seizure has lasted, the assessment of adequate seizure duration should be determined by the presence and duration of seizure activity on the EEG in preference to the presence of a peripheral seizure.

7.2 Post-Treatment

- The psychiatrist giving ECT and the anaesthetist must remain within the operating area until all patients regain consciousness and no other significant problems remain which might require attention. The referring clinical team should be informed of any significant problems which should be documented in the patient's health record.

7.3 Review of patients during ECT course

- Cognitive assessment should be performed after each treatment (10 question orientation score completed once conscious, repeated every 5 minutes until oriented as per ECTAS).

- Cognitive assessment should be completed weekly by the referring team.

- The patient's responsible medical team should complete the CGI in the ICP after each treatment

- Enquire about side effects of ECT after each treatment.

- Assess medical fitness for further General Anaesthetic + ECT. Repeat physical examination, U&E, ECG etc. as appropriate.

- Problems should be addressed at the referring team's multidisciplinary meeting and also reported to the ECT staff. In addition notes should be made in the patient's health record.

- Follow any instructions left by the anaesthetist.

8.0 PROCEDURE FOR THE MANAGEMENT OF PROBLEMATIC TREATMENTS

8.1 Equipment self test failure – Prior to treating patient

If the equipment self test fails because:

- The impedance is too low; this suggests a short circuit. Make sure that the inter-electrode scalp area is dry and free from excess conduction gel or hair preparations. Another possibility is electrode failure.

- The impedance is too high; scalp-electrode contact is poor, so apply more gel to the electrodes, prepare the scalp with more scrub, and apply the electrodes with greater pressure.

- If no stimulus is delivered despite attempts to correct any mechanical failure, the contingency machine should be used for all subsequent patients on that treatment day. The current patient will be unable to have treatment on this occasion and the treating team must be notified. The malfunctioning machine should be immediately serviced and repaired if required.

8.2 Failed Seizures

- A failed seizure is when there is no evidence of a generalised tonic clonic seizure or any cerebral activity on EEG. Ask the anaesthetist to continue ventilation with oxygen and, if necessary, to augment anaesthesia. Increase the dose to the next highest level on the dosing procedure and re-stimulate. If the response to re-stimulation is inadequate, do not re-stimulate again at this session. Report the incident to the patient's consultant.

- If from review of the patient the problem seems to be due to remediable factors (eg drugs, electrode placement etc.) modify these before the next treatment and make no adjustment to the original stimulus level selected at the previous treatment. If remedial factors do not appear to be the cause go to the next level on the dosing schedule. If this does not produce a seizure, re-stimulate at this session repeating the above procedure.

- For missed or absent seizures there must be a minimum of 20 seconds interval before re-stimulation which is addressed by the machine recalibrating after a stimulus is delivered.

- If the seizure shortens during the treatment course by more than 20%, increase the current to the next highest level on the dosing procedure.

- If the patient fails to clinically improve after 2-3 treatments increase the current to the next highest level on the dosing procedure. Consideration

should be given to changing the pulse width by the treating team before the next treatment.

- The dose should not be increased over 3 times the seizure threshold for short seizures with bilateral treatment. For unilateral treatment, 8 times the seizure threshold should not be exceeded. Consider other strategies such as changing the anaesthetic agent.

8.3 Prolonged Seizures

- For long seizures, 70-120 seconds, reduce the dose to the previous level on the stimulus dosing chart.

- For seizures longer than 120 seconds terminate with an initial dose of 4mg of lorazepam IV. Report the incident to the patient's clinical team for a full review of further treatment. If treatment is to continue reduce the charge at next treatment to the next lowest dose in the treatment procedure.

8.4 Marked Cognitive Impairment

Report the incident to the patient's clinical team for a full review of further treatment. If the treatment is to continue reduce the charge at the next treatment to the next lowest dose in the treatment procedure. Consider unilateral ECT. An increase in the awareness of the patient's capacity to consent is required.

8.5 Untoward Events

- Follow appropriate guidelines for initial management.

- The patient is to remain in the general Hospital until medically fit for discharge, this may require an acute medical admission.

- Inform treating clinical team.

- Complete incident form on the computer reporting system.

- Arrange meeting for critical incident analysis and debriefing.

8.6 Less Than Prescribed Stimulus Delivered

This will be indicated by the readout on the screen of the ECT machine. The most likely cause of this will be inadequate electrode placement (see increased impedance guidance) or not holding the treatment button for long enough during treatment.

If this occurs then the patient should be treated according to their response. If there is a failed seizure then they should be restimulated. If they have a seizure then the dose delivered should be recorded and the seizure length on EEG and peripherally. An incident should also be completed.

9.0 GUIDELINES FOR ECT SESSION MANAGEMENT

Aim – Ensure patient safety and provide adequate staffing level to facilitate safety

There are at most 4 places available for ECT in Altnagelvin and at most 3 places available in Tyrone County Hospital. It is necessary to ensure that those units supplying staff have sufficient staff available to allow ECT to proceed for up to these numbers of patients on days when ECT is administered.

If a referral is made while the ECT list is at capacity the case must be discussed with the ECT consultant. Normally there will not be a waiting list

9.1 Waiting list management

In the event of an urgent referral, priority will be based on clinical need. This will be discussed with the referring team, however the final decision re prioritising patients on the waiting list will be made by the ECT Consultant. It is the responsibility of the referring team to put in place an alternative management plan whilst awaiting ECT. Reference may be made to NICE guidelines on the use of electroconvulsive therapy.

If a patient requires ECT urgently whilst the ECT list is at capacity, the following are alternative options to consider:-

1. Treating an additional patient – to be discussed with anaesthetist and evaluation of risks/benefits of breaching capacity required.
2. Use of ECT facilities in other sector.
3. Reduce the frequency of another patient's treatments to once per week. This will be discussed with the referring team.
4. Treat on emergency theatre list
5. Treatment to be organised for other days than normally available.
6. Consideration may be given to ECR referral to another Trust for treatment.

10.0 ECT IN SPECIALISED CASES

10.1 Additional Considerations for ECT in the Elderly

- Age is not a contraindication for ECT
- All coexisting medical or surgical conditions should be stabilised prior to ECT.
- Treatment will take into account the increased likelihood of high seizure thresholds among elderly people
- Older people are at increased risk of cognitive impairment associated with ECT. Unilateral ECT should be the considered for those with pre-existing cognitive impairment.
- Assess cognitive function at least 24 hours after the administration of ECT in addition to usual cognitive assessments.

10.2 Additional Considerations for ECT in learning disability

ECT should be used only in carefully selected patients with learning disability, usually when –

- Psychiatric illness has proved refractory to medical treatment
- There are intolerable adverse effects of medication
- The patient's clinical condition has severely deteriorated

There are no absolute contraindications to the use of ECT in patients with a learning disability.

10.3 Additional Considerations for ECT in Young People

- For those under 16 two independent opinions should be available from child and adolescent psychiatrists
- For 16-17 year olds, one opinion from a child and adolescent psychiatrist is required and a second opinion is desirable.
- All non essential medications should be stopped during ECT because of reports of long seizures and post ECT convulsions
- Stimulus dosing should take into account the lower seizure threshold in younger people. Initial treatment should be with a dose of 25mC
- Parents and the child should be involved in the consent process. Where it is not possible to obtain informed consent, ECT should be given only when the patient's life is at risk from suicide or physical debilitation because of depressive illness.
- Treatment should be provided from the Beechcroft Regional Unit in Belfast, unless there are exceptional circumstances. This should be discussed with the ECT consultant.

11.0 PROCEDURE FOR MAINTENANCE / CONTINUATION ECT

Continuation ECT is the use of ECT to prevent relapse of symptoms. Maintenance ECT is the use of ECT to prevent further episodes.

11.1 Continuation ECT should be considered when

- The index episode of illness responded well to ECT
- There is early (0-6 months) post ECT relapse not controlled by medication
- There is later recurrence (6-12 months) not controlled by medication
- There is an inability to tolerate prophylactic medication
- There is repeated relapse because of poor compliance
- The patient requests it

11.2 Maintenance ECT

Maintenance ECT should be considered for those whose illness recurs after continuation ECT.

11.3 Assessment for continuation ECT

- Review the case to ensure the diagnosis is correct
- ECT has been proven to be of benefit
- Alternative options have been explored
- Obtain the patients informed consent, discussion with patient and family must be conducted and documented to address treatment purpose, benefits side effects etc.
- Perform a full medical screening and examination, ideally in collaboration with an experienced anaesthetist
- Complete investigations as appropriate e.g. Bloods, ECG, CXR.
- Perform baseline standardised assessment of illness severity e.g HAM-D, or MADRS.
- Obtain a second opinion from a consultant with experience in ECT.
- Review concurrent medication.
- A treatment plan should be clearly documented in the notes.
- Inform patient, and if they consent family, of the possible cognitive side effects of longer term ECT

11.4 ECT procedure –

- Follow procedure as for acute ECT
- Outpatient treatment can be given once recovery is achieved
- Electrode placement would normally be the same as used during the acute phase.
- Stimulus dosing should be used.
- Clinical response will indicate efficacy and determine if the dose should be increased.

- Once clinical recovery has occurred, reduce the frequency of ECT to the minimum required to maintain clinical response.

e.g.

  - give as acute ECT until clinical response is achieved
  - reduce to weekly
  - reduce to every 10 days (rounded to nearest session day)
  - reduce to every 2 weeks
  - reduce to every 3 weeks
  - reduce to monthly

- In patients who are not commencing continuation ECT immediately after acute ECT it may be possible to start at a lower frequency of every 2 weeks
- Review efficacy after every 2 sessions
- Review frequency monthly
  - Once established, review may be possible less often
  - Feedback from carers is essential
  - Deterioration in the mental state that suggests the return of depressive disorder should result in a return to the previous level of frequency until improvement is re-established
  - Once initial recovery has been achieved, a full baseline psychometric assessment should be performed.
  - Complete cognitive assessment monthly
  - Review by a senior anaesthetist every 6 months
  - Repeat psychometric assessment every 12 months

11.5 Stopping continuation ECT

- Since relapse is most likely within the first 12 months of recovery, continuation ECT should be given for at least one year after recovery
- After one year, review the need for long term ECT
- For continuation ECT it is reasonable to consider terminating the course at this stage
- Consider maintenance ECT if there is return of symptoms
- For maintenance ECT the course should be continued indefinitely

12.0 DISCONTINUATION OF ECT

12.1 Overview

- The prescribing and discontinuation of ECT are the decision of the patients
- Consultant/RMO. However, the decision to discontinue ECT may also take
- place in the context of discussion with the ECT Consultant and/or
- Anaesthetist in the light of adverse reactions to ECT such as cognitive
- problems or anaesthetic problems.
- Discontinuation may also take place because of poor efficacy or, because the patient has withdrawn consent.
- The clinical status of a patient should always be assessed between each
- ECT session and treatment should be stopped when a response has been
- achieved.
- A patient should not receive more treatments than is required to achieve
- an adequate response, even if more have been prescribed, hence the
- patient must be reviewed after each treatment during the treatment
- course.

12.2 Recommendations (from ECT Handbook)

- A set course of treatments should not be prescribed – the need for further
- treatments should be assessed after each individual treatment.
- The majority of remissions occur before the 9th treatment. However 40%of patients who had not responded after 6 treatments went on to gain remission. A patient who has had no response within 12 treatments is unlikely to have a sustained response to ECT.
- If no clinical improvement at all is seen after six properly-given bilateral
- treatments, then the course re-evaluated.
- It may be worth continuing up to 12 bilateral treatments before
- abandoning ECT in patients who have shown definite but slight or
- temporary improvement with early treatments.

Unilateral ECT

- For patients who do not respond to unilateral ECT, consideration should be
- given to switching to bilateral treatment. It will be necessary to recalculate
- seizure threshold in this case.

13.0 GUIDELINES FOR MEDICAL STAFF ADMINISTRATING ECT

13.1 Duties of Responsible Medical Officer (RMO) and other Medical Staff

- Be responsible for prescribing, reviewing and terminating a course of ECT.
- Be responsible for all issues relating to informed consent or the use of legislation.
- Make sure that there is adequate review of the patient's physical health and the communication of this and other relevant information to the treating anaesthetist.
- Make sure that the patient's cognitive status is established prior to the first treatment and reviewed weekly thereafter.
- Make sure that all relevant sections of the local ECT record form are completed before the patient is sent for treatment.
- Make sure Capacity Assessment is completed within 24 hours before each treatment.
- Make sure Clinical Global Impression is completed before each treatment and at the end of the ECT course.
- Review patients at 3 and 6 months after ECT course or deputise this role those who will e.g. community mental health teams.

13.2 The ECT Department Consultant:

- The named consultant has dedicated sessional time for ECT and this should be included within their job plan.
- In consultation with management, make sure that procedures, equipment and facilities comply with Royal College of Psychiatrist (RCPsych) guidelines.
- Make sure that there is a reliable procedure to communicate information to the referring team about any treatment problems.
- Ensure there is adequate cover during absence by a suitably competent psychiatrist.
- Arrange training for medical staff in the indications and delivery of ECT.

13.3 Training and Supervision

Doctors new to the ECT rota should be assessed and trained even if they've had ECT training elsewhere.

Training should include:

- Theoretical basis of ECT treatment
- Familiarity with procedure and clinic layout
- Observation before administering
- Supervision 3 times before administering alone
- Supervision directly or through examination of treatment charts once weekly
- Opportunity to appraise papers on ECT eg through journal club

14.0 GUIDELINES FOR NURSING STAFF FOR ECT

14.1 The ECT Lead Nurse

- The ECT Lead nurse will be responsible for the running of the ECT Service. This nurse will have responsibility for training and supervising the co-ordinating and escort nurses and should be at least Band 6 level. The Lead Nurse should attend RCPsych training and should have a good working knowledge of the ECT procedure, complications and possible side effects, both common and rare.

- The nurse will be seconded to this role and should have protected time to carry out all the duties required and should not be expected to cover a ward or other responsibilities during this protected time.

14.2 Areas of Responsibility

- Liaising with prescribing teams and ECT team.
- Assisting in treatment sessions.
- Review and update ECT Policy, procedures and ECT Care Pathway.
- Performing audit and risk assessment.
- To ensure a high standard of record keeping and documentation.
- Supervision, Training and Appraisal (staff and personnel)
- Organise teaching sessions for students and new staff.
- Provide training and support to escort and ward nurses.

14.3 Administrative Duties: The ECT Lead nurse should –

- Know local and national guidelines and update procedures and policies accordingly.

- Be responsible for co-ordinating the ECT Rota for nursing staff

- Maintain records of ECT Activity for RQIA and ensure their submission via Epex and other relevant systems.

- Carry out audits of practice and patient care.

- Oversee the systems and processes for the administration and transport of patients receiving ECT treatment.

- Ensure that all patients receive written and verbal information on ECT and oversee the completion of any satisfaction questionnaires.

- Once a course of ECT is completed the ECT Lead Nurse will arrange with the relevant community team a follow-up appointment to allow the post-treatment CGI to be completed and the follow-up assessments to be undertaken. The ICP remains active until this is completed and should be used to document these assessments.

- Following this assessment the ICP is completed for that treatment and the audit form will be removed from the ICP and retained for audit

- Ensure that following a treatment course of ECT patients receive a satisfaction survey.

14.4 Role of the ECT co-ordinating Nurse

Before the Treatment Session the ECT nurse should –

- Liaise with wards and prescribing team to ensure all relevant investigations have been carried out before treatment.

- Organise and schedule times for both in-patients and day-case patients to minimise waiting times where possible.

- Provide information and support for patients, relatives and staff.

- The ECT nurse will also need to be aware of the required routine investigations and the significance of their results.

- Both written and verbal information on ECT should be given to all patients and specific day-case information should be given to those attending for day-case ECT.

- Complete Pre ECT preparation checklist (See Appendix)

During A Treatment Session

During a treatment session the ECT nurse should –

- Carry out and record routine pre ECT nursing checks, or delegate this task to a suitably trained deputy.

- Check patient's legal status and consent.

- Ensure that any concerns re patients are passed onto relevant members of the ECT team.

- Provide support and reassurance for patients.
- Ensure the safety throughout the treatment.
- Introduce the ECT team to the patient.
- Carry out any required preparation of patient e.g. EEG Monitoring.
- Assist the psychiatrist with the timing, in accordance with local procedure.
- Observe patient throughout treatment and record observations.
- Assist with placing patient in recovery position.
- Escort the patient through to recovery area.
- Prepare the treatment room for the next patient.
- Discuss the treatment of the next patient with the ECT team.
- The nurse should be fully conversant with the use of the particular ECT machine in the clinic.
- The ECT nurse should not administer the treatment, but check the dose and confirm verbally with the psychiatrist.
- There should be a minimum of two trained nurses in the treatment room.
- The ECT nurse should have knowledge of the actions required in the event of a medical emergency, e.g. Suxamethonium apnoea, malignant hyperpyrexia.
- The ECT nurse should have knowledge of the drugs used for ECT.
- The local procedure for termination of prolonged seizures and have required drugs available.

After Treatment

- The ECT nurse should ensure that out-patients are not discharged until fully recovered. They should be seen by a doctor before hand.
- Out patients must be collected by a responsible adult and advised to follow information advice sheet.

- Complete ECT records according to local procedure

Maintenance/Environment

The ECT nurse should –

- Ensure the ECT clinic is safe for both patients and staff.
- Regular maintenance of equipment and keeps detailed record on this.
- Carry out and keep updated risk assessments.
- Be familiar with the use of all the equipment in the ECT clinic.
- Check expiry dates on all disposable equipment and maintain stock.
- Check expiry dates on all drugs and order as appropriate.

Staff Training and Personal Development

The ECT Co-ordinating nurse should –

- Have a good knowledge of possible drug interactions, side effects and the required treatment.
- Undertake regular training in Basic Life Support (BLS) and Immediate Life Support (ILS) to meet requirements of procedures.
- Have a reasonable level of training and experience of airway management.
- Have knowledge of legal status and consent.
- Attend ECT Refresher training as required.

14.5 Role of the Escort Nurse

- Spend time with patients and relatives in order to provide support and information.
- The escorting nurse should always be a trained nurse.
- Each patient should be individually escorted.

- On arrival to ECT Suite, check the details on, and attach identity bracelet to the patient's wrist.

- The nurse should ensure the patients safety within the recovery room, remain with them, providing support and orientation until their return to the ward or are collected by a responsible adult.

- Monitor the patient following their recovery from the anaesthetic while they remain in the ECT area. This includes monitoring cognition and providing a light snack.

The Escort Nurse Should Have –

- Up to date training in basic life support and be competent in it.

- Good knowledge of the ECT process, the side effects and the action required if they occur.

- Be familiar with the clinic environment and the location of emergency equipment.

- The escorting nurse should know the patients they are escorting, be aware of their legal status, consent and medical complications/history.

- They should carry out pre ECT nursing checks and ensure all relevant documentation is available.

- They should ensure safekeeping of patients valuables.

- He/She should check the patient in recovery in accordance with local procedure.

- The nurse should ensure the patients safety within the recovery room, remain with them, providing support and orientation until their return to the ward or are collected by a responsible adult.

14.6 The Role of Nurse in Charge of Recovery

- There should be one trained nurse with overall responsibility in the recovery room. This should not be the ECT or Escort nurse.

- There should be a minimum of two trained nurses in recovery and the number of staff in the recovery area should exceed the number of unconscious patients by at least one.

- Once the patient has come round from the anaesthetic they hand the care of the patient back to the escort nurse.

The Recovery Nurse should –

- Have a good knowledge of the ECT process.
- Be familiar with the ECT clinic and location of emergency equipment.
- Be competent in all aspects of the BLS and ILS.
- Have received training in recovery procedures, e.g. airway management.
- Receive a handover from anaesthetist.
- Provide a safe environment for both staff and patients while in recovery area.
- Alert the anaesthetist to any concerns or adverse events.
- Orientate patients to their situation and environment.
- Complete relevant documentation.
- Ensure that patients are not discharged back to the ward until fully recovered.
- Remind all out patients to follow the information sheet given to them.

15.0 GUIDELINES FOR PRESCRIBING OUTPATIENT ECT

Serious consideration should be given prior to prescribing a course of outpatient ECT.

Factors that should influence the decision –

- Past and present medical condition – cardiac and respiratory problems.
- Previous anaesthetic complications.
- Previous complications or side effects with ECT.
- Domestic situation – Do they live alone? Is support at home available for 24 hours post treatment and between treatments?
- Reliability in taking or omitting medication as prescribed.
- Ability to retain information given to them – to fast from 12 Midnight.
- Any history of suicidal ideation. Be aware that suicidal risk may increase in the early stages of treatment as level of depression may remain static but volition may improve.
- Employment situation – Do they intend to carry on working during their course of treatment? Consider what their job is and how they are going to get there the day after treatment, as they are not insured to drive for 24 hours post anaesthetic.

If all these factors have been considered and it is felt appropriate to go ahead with outpatient ECT then the following procedure should be followed.

15.1 Procedure for Outpatient ECT

- Follow procedure as for inpatient ECT.
- In addition to the patient fact-sheet, an outpatient ECT information leaflet should also be supplied.
- Included with the patient's notes should be the consent form and completed ECT Care Pathway (including outpatient agreement form).
- Contact the ECT suite to place the patient's name on the ECT list. The patient's GP should also be informed.
- The evening prior to treatment the patient should fast from 12 midnight and take only the medication indicated by their consultant.
- The patient should arrive at the Day procedure Unit at 8.45am.
- On arrival at the ward baseline observations should be recorded.
- Following treatment the patient must remain in the unit for a minimum of 90 minutes.
- Prior to discharge the patient must be reviewed by a doctor. The outpatient ECT discharge form must be completed after each session.
- The patient should be collected from Day procedure Unit by a responsible adult. The patient must not drive. A responsible adult, who is aware of the

procedure which the patient has undergone, should remain with them for 24 hours and sign the Outpatient Agreement Form.

- All patients receiving outpatient ECT should be reviewed before each session.

16.0 AFTER ECT COURSE COMPLETED

Once the course of ECT is completed it is the responsibility of the prescribing team to complete the RQIA Audit Information located at the end of the ECT Care Pathway. By completing these contemporaneously the Trust will be able to respond to RQIA Audit requests in a timely manner, and will also be able to easily undertake internal ECT Audit. This documentation is to be retained by the ECT Lead Nurse and used to prepare audit returns for RQIA and other audits.

17.0 IMPLEMENTATION

17.1 Dissemination

This policy is suitable for implementation immediately, and indeed is implemented in draft.

Relevant to staff who are involved in administering ECT, staff working in the ECT facilities in the Tyrone County Hospital and Altnagelvin Hospital, relevant to all doctors working in Psychiatry.

Dr Moore should be contacted in the event of significant barriers or timescales not being met.

17.2 Resources

Training will be required for nursing and medical staff around ECT, this is progressed via CEC and the Royal College of Psychiatrists and is ongoing.

17.3 Exceptions

None

18.0 MONITORING

This policy is monitored locally by audit systems described in the text, and regionally by ECT audit and inspections by the RQIA.

19.0 EVIDENCE BASE / REFERENCES

Mental Health (Northern Ireland) Order 1986.
ECT Handbook 3rd edition 2013 Royal College of Psychiatrists 2013
ECTAS Standards 10th edition (Dec 2012)
NICE Guidance on the use of ECT (update 2010)

20.0 CONSULTATION PROCESS

Consultant Psychiatrists
Mental Health Clinical And Social Care Governance Team
ECT Nursing staff
Theatre Staff in ECT locations

21.0 EQUALITY STATEMENT

In line with duties under the equality legislation (Section 75 of the Northern Ireland Act 1998), Targeting Social Need Initiative, Disability discrimination and the Human Rights Act 1998, an initial screening exercise to ascertain if this policy should be subject to a full impact assessment has been carried out. The outcome of the equality screening for this policy, procedure, guideline or protocol is:

No impact.

22.0 APPENDICES

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APPENDIX 1 EXAMPLE FORM 1 CONSENT FORM FOR ECT

Responsible healthcare professional……DR AN OTHER …… Job Title…CONSULTANT PSYCHIATRIST

Name of proposed procedure or course of treatment (include side of body or site and brief explanation if medical term not clear)
COURSE OF BILATERAL/UNILATERAL ELCTROCONVULSIVE THERAPY UP TO A MAXIMUM OF 12 TREATMENTS

I have explained the procedure. In particular I have explained:
PREPARATION FOR ANAESTHESIA AND TREATMENT INCLUDING FASTING, CHANGES TO MEDICATION AND VENEPUNCTURE ANAESTHESIA TREATMENT, MONITORING AND RECOVERY

The intended benefits IMPROVEMENT OF DEPRESSION

Serious or frequently occurring risks…MEMORY LOSS (POSSIBLY PERMANENT) POST-TREATMENT CONFUSION, HEADACHE, MUSCLE, ACHES, NAUSEA, FATIGUE

Possible additional procedures which may become necessary during the procedure.

Blood transfusion other procedure (please specify)…TREATMENT OF PROLONGED SEIZURE

The procedure will involve general and/or regional anaesthesia/local anaesthesia

I have also discussed what the procedure is likely to involve, the benefits and risks of any available alternative treatments (including no treatment), any samples that may be taken any particular concerns of the individual.

The following leaflet/tape has been provided WHSCT ECT INFORMATION LEAFLET

Signed……
Date……
Name
(Print)……
JobTitle……
……

Contact details (if patient wishes to discuss options later)……

APPENDIX 2 **STIMULUS DOSING SCHEDULE FOR SPECTRUM 5000**

Bilateral Placement

Pulse Width Settings (On Main Menu) **MAX in mS**	**LEVEL**	**TITRATION DOSE IN mC**	**TREATMENT DOSE (IF TITRATION SEIZURE >=20SECS)**	**TREATMENT DOSE (IF TITRATION SEIZURE 6-19SECS)**
1.0	**1**	**57.4**	**69.1**	**80.5**
1.0	**2**	**103.8**	**126.5**	**195.8**
1.0	**3**	**207.3**	**230.4**	**299.9**
1.0	**4**	**299.9**	**368.4**	**426.4**
1.0	**5**	**448.9**	**529.7**	**599.9**
1.0	**6**	**599.7**	**760.5**	**829.3**
0.7	**7**	**-------**	**760.4**	**760.4**
0.7	**8**			

Unilateral Placement

Pulse Width Settings (On Main Menu) **MAX in mS**	**LEVEL**	**TITRATION DOSE IN mC**	**TREATMENT DOSE (IF TITRATION SEIZURE >=20SECS)**	**TREATMENT DOSE (IF TITRATION SEIZURE 6-19SECS)**
1.0	**1**	**22.9**	**103.8**	**126.5**
1.0	**2**	**57.4**	**172.4**	**276**
1.0	**3**	**103.8**	**380**	**448.9**
1.0	**4**	**207.3**	**760.5**	**1032**
0.7	**5**	**-------**	**610.6**	**610.6**
0.7	**6**	**-------**	**760.4**	**760.4**
0.7	**7**	**80.6**	**460.8**	

APPENDIX 3 Emergency ECT BILATERAL PLACEMENT ONLY

Age	Level	Male	Female
Under 30	1	57.4	57.4
	2	207.3	149.5
	3	299.9	230.4
30 to 60	1	57.4	57.4
	2	253.0	207.3
	3	380.6	299.9
Over 60	1	57.4	57.4
	2	299.9	253.0
	3	448.9	380.6

APPENDIX 4 RECOMMENDED PREPARATION AND INVESTIGATIONS PRIOR TO ECT TREATMENT

Significant Medical Conditions

Medical staff must use their knowledge when evaluating any patient with respect to a potential anaesthetic consultation (pre-treatment) such as:

- Drug allergies
- Previous adverse reaction to anaesthesia
- Hypertension
- Diabetes mellitus (especially Insulin-dependent diabetes)
- Angina, recent myocardial infarction (particularly if arrhythmic, thrombic or Myocardial / septal weakness has been suggested by previous investigations)
- Stroke (specify whether haemorrhagic or ischaemic)
- Hiatus hernia – consider Lansoprazole
- Abnormal body weight (obesity or anorexia)
- Renal impairment
- Osteoporosis/arthritis
- Raised Intracranial Pressure
- Significant dental work / abnormalities / loose teeth

History and Physical Examination

A good medical history and full physical is required prior to ECT, this should include checking for any evidence of

- Cachexia
- Heart failure
- Significant valvular disease
- Unstable dysrrhythmias
- Uncontrolled hypertension
- Significant infection
- Pulmonary disease
- Glaucoma
- Arthritis
- Osteoporosis
- Raised intracranial pressure
- Dental problems
- Any significant metabolic or endocrine disorders
- Coagulation or bleeding disorders
- Use of anticoagulant medication

Be wary of scars or masses on the thorax indicating implanted pacemakers / cardioverters –these should be discussed with the anaesthetist and cardiologist if necessary.

Always document cigarette, alcohol and illicit drug use

Necessary Investigations

- Weight and BMI calculation (notify anaesthetist if extreme deviation from norm)
- A Full Blood Picture including Haemoglobin
- Serum urea and electrolytes. Particularly important for patients on diuretics, lithium, or other vaso-active/ cardiac drugs, and those with diuretics or with known renal disease.
- LFT's – particularly important in cachexic states, drug or alcohol misuse, confusional states (acute or chronic), recent overdoses (intentional or otherwise).

Special Investigations

- INR and Coagulation Screen - patients with clotting disorders or anti-coagulant therapy
- Blood sugar levels must be assessed immediately before each treatment - For those suffering from diabetes
- Chest x-ray in all relevant high-risk groups (not uncomplicated asthma). This includes patients who have suffered recent falls and/or physical restraint.
- ECG – in all patients with cardiovascular, respiratory, renal disease, irregular pulse, heart murmur, hypertension, diabetics aged > 40, all males > 60 years, all females > 65 years.
- Hepatitis B and C in all high risk groups
- Echo cardiogram – not routinely used but may be requested by anaesthetist
- Sickle-cell test for all Afro-Caribbean, Middle Eastern, Asian and Eastern Mediterranean patients, unless previously investigated/known.

- Pregnancy testing of females within the appropriate age range, according to Trust policy

Concurrent Medications That May Complicate ECT / ECT Anaesthesia

In principle, any medication which impacts on heart rate, blood pressure, seizure threshold, respiratory status or interacts with the commonly used anaesthetic agents (Propofol, Etomidate or, rarely, barbiturates) and paralysing agents (usually, but not exclusively, Suxamethonium) should be considered. The British National Formulary which has a comprehensive 'interactions' section to allow these to be identified.

With regard to interactions, one should also consider that Atropine and a beta-blocker, calcium channel blocker or Lignocaine may be used in the acute context (see below). Psychotropics which are of particular relevance to ECT anaesthesia would include anti-convulsant mood stabilisers, Lithium, MAOIs (mono-amine oxidase inhibitors), Benzodiazepines and SNRIs (e.g. Venlafaxine, which may cause hypertension) and Clozapine. These should where possible be omitted prior to ECT.

APPENDIX 5 ANAESTHETICS AND ECT

The Role of the Anaesthetist

The Anaesthetist is central to safe ECT practice and Consultant Anaesthetist input is essential.

The Anaesthetist's duties include to:

- Safely anaesthetise patients for ECT
- Advice regarding drugs required to manage medical complications pre, during and post ECT.
- Advice regarding monitoring equipment
- Advice regarding staffing and the environment within the ECT suite.

The Anaesthetist is ultimately responsible, not only for determining the dose of induction agent and muscle relaxant, but also the dosage of any necessary pre-medication for existing medical conditions and if required medications administered to the patient prior to/during the ECT treatment.

Role of the anaesthetic nurse assistant

The anaesthetic nurse will assist the anaesthetist in safe administration during ECT and will be part of the ECT team. They will assist in:-

- delivery of the anaesthetic;
- setting up and checking of anaesthetic and monitoring equipment;
- preparation of drugs required for the anaesthetic;
- placement of the cannula;
- Monitoring the patient with ECG, pulse oximeter and blood pressure throughout the treatment and into recovery.

Anaesthetic procedure for ECT

- If the client is deemed fit, then they will be deemed fit for that series of treatments unless there is an obvious intervening medical event e.g. URTI or LRTI.
- The anaesthetist needs to see the client before the first treatment
- Consent for treatment will be obtained by the psychiatric team, however anaesthetists need to be aware that, in some patients, it will be declared that the treatment is in the patient's best interest whether they want it or not. These patients will be identified to the anaesthetist and this treatment should take place, however, distressing.
- Once a series of ECT has started then everyone should endeavour to continue to administer the treatments twice weekly.
- The drugs used for induction of anaesthesia will be either Propofol (1.0-1.5mgs/kg) or Etomidate (150 – 300mcgs/kg) – see below. If another drug is being used or if the induction agent is changed from treatment to treatment the psychiatrist needs to be informed.

- The muscle relaxant of choice will be Suxamethonium(0.3-0.6mgs/kg) . Other agents to be used need to be discussed beforehand.
- The procedure should be: Client brought to the to the day-procedure theatre at Tyrone County Hospital or DPU in Altnagelvin Hospital introduce yourself, WHO check-list done before starting, IV access, pre-oxygenation, IV induction agent, depolarising MR, short period of hyperventilation, insert mouth gag, treatment, hand ventilation until spontaneous ventilation returns, turn on side, proceed to recovery.
- If the response to stimulation is not sufficient then the psychiatrist may wish to re-stimulate. This may require a further bolus of Propofol and may require another bolus of Suxamethonium if spontaneous ventilation has returned. If Suxamethonium is repeated then it should be preceded by Atropine 0.6mgs.
- Re-stimulation may be required up to a total of 3 stimulations. The psychiatric team will appreciate that further doses of Propofol and Suxamethonium expose the client to untoward risk. Therefore while re-stimulation may be necessary it needs to be carried out within the short window that this anaesthetic is designed for. If the anaesthetist refuses to give more and more anaesthetic agents then this is in the best interest of the patient.
- In TCH : Once in recovery the client will be managed by the recovery staff and discharged back to the Day procedure ward when they are awake and stable in Tyrone County. In Altnagelvin Hospital the patient will remain in the Recovery Area and be discharged back to the inpatient wards in Grangewood
- Records of the anaesthetic will be written into the ECT ICP Anaesthetic Sheets. Any untoward events relating to the anaesthetic will also be recorded here.

Induction agents and muscle relaxant for ECT

Propofol (0.75 – 1.5 mg/kg) and etomidate (0.15 – 0.3 mg/kg) are routinely used as induction agents. The selection of this will be at the discretion of the anaesthetist. Whenever induction agent is chosen, it is probably unwise to alter that choice in the middle of a course of treatment without full consultation between the members of the ECT team.

Muscle relaxants are used to ameliorate the convulsive muscle activity during stimulation and the subsequent seizure and reduce the risk of injury. In most cases it is not desirable to ablate all visible signs of muscular activity since this is a useful indicator of seizure induction. Muscle relaxation is usually achieved with suxamethonium (0.3 – 0.6 mg/kg), but if this is contraindicated a short-acting non-depolarising agent (such as atracurium or mivacurium) can be used. In such cases neuromuscular nerve stimulator is used to ascertain both the adequacy of the block and its subsequent safe reversal.

APPENDIX 6 PHYSIOLOGICAL MONITORING DURING ECT

Specific Physiological Considerations Pertaining to ECT Treatment / Anaesthesia

Before proceeding to outline specific medical and iatrogenic potential complications of ECT anaesthesia, some basic physiological parameters associated with ECT administration need taking into consideration.

- Vagal CVS Effects

The ECT stimulus gives rise to a bradycardia and on occasion transient asystole which reduces blood flow, therefore, in hypo-dynamic circulatory states; this is a potentially dangerous period of treatment, but is usually temporary.
Seizure activity corresponds to a rise in intracranial and systemic blood pressure in association with an increase in heart rate. This effect is a consequence both of direct stimulation of brain stem areas and endocrine effects consequent upon seizure induction.

- Potential Problems

In the pre-seizure stage, a prolonged asystole of over thirty seconds can occur, particularly in patients with pre-existing bradycardia and in patients who are recipients of sub-threshold stimuli (i.e. those who do not demonstrate seizure activity). Clearly repeating the administration of the electrical stimulus may further compound the vagal stimulation which leads to the bradycardic state.
NOTE: Anaesthetic agents can also contribute to bradycardic states, as can Suxamethonium, on repeated administration.

With re-stimulation and dosage titration is practiced, the potential for multiple sub-convulsive stimuli is obviously high and the risk of problems increased.
Pre-treatment with beta-blockers can further compound the situation. Atropine 0.6mg is often helpful in eradicating this problem in vulnerable individuals, but is not routinely given as it may theoretically increase post-ECT confusion. A good alternative is Glycopyrrolate, given in increments of 0.2mg, because it does not cross the blood brain barrier. In situations where pre-treatment with beta-blockers is desired, some authorities do strongly recommend co-administration of Atropine.

- Implanted Cardioverters

One should seek an opinion, from a specialist (e.g. the Cardiologist caring for the patient), as to the risks associated to the electrical stimulus of ECT and/or the physiological response to the stimulus, in relation to the device. For patients from the Tyrone and Fermanagh consideration should be given to the most appropriate place to administer ECT for this group.

- Acute Hypertensive States

In patients vulnerable either to hypertension or conditions that could be worsened by hypertension (e.g. aneurysms, cerebral space-occupying lesions) then intravenous pre-treatment beta-blockade is usually employed although, in some centres, sublingual GTN

or sublingual Nifedipine (calcium channel blocker) have been successfully employed. (these cases are unlikely to be done at TCH)

- Raised Intra-Cranial Pressure

Clearly any intra-cranial lesions, particularly those that are still evolving and/or rapidly expanding raise particular issues and individual cases should be discussed with anaesthetist and physician if required. In less acute situations, the main potential physiological problem is an increase in peri-lesion oedema (e.g. tumours, subdural haemorrhages) which can, to some degree, be countered by steroid administration. This is clearly a decision that should be made ahead of the acute treatment situation.

Although there is much consternation about ECT post - CVA, in established ischaemic CVA's there is no literature to suggest adverse effects and some (animal) studies indicating good response to ECT. Theoretically, the increase in blood flow and oxygen up-take immediately post - ECT (particularly early in the course) could – hypothetically – confer benefit in ischaemic lesions (although this is not a suggestion to use it for this purpose!).

The decision to offer ECT post-CVA should be carefully considered and discussed with the anaesthetist. (these cases are unlikely to be done at TCH)

- Intra-Ocular Pressure

There is inconsistency in findings pertaining to this, but in severe glaucoma, discussion with an ophthalmologist is advisable, pre-treatment with Atropine can cause outlet obstruction.

- Tachyarrhythmias

Most commonly ventricular premature contractions (VPC) can occur late in the seizure or in the immediate post - ictal. Isolated ones are of no relevance but an increased frequency or multi-focal origins of the VPC's are a cause for concern (if they coincide with the apex of the t-wave, then they may precipitate VT or even VF.)

If greater than 5 VPC per minute, notify anaesthetist.
Lignocaine is the cardio-protective agent commonly employed although this can impact on the seizure, causing premature termination (and potential loss of therapeutic effect). Another option may be to use beta-blockers, which have less impact on the seizure duration.

NOTE: Decisions on treatment of the above complications/potential complications are ultimately taken by the anaesthetist.

- Malignant Hyperthermia

The management of this condition is highlighted within each of the clinics treatment rooms as described by the Royal College of Anaesthetists. If there is any family history to this condition then the anaesthetist must be informed. (these cases are unlikely to

be done at TCH)

- Ictal Effects of ECT in Epilepsy

Perhaps paradoxically, ECT may confer a protective effect on idiopathic epilepsy (and historically was used as a treatment of penultimate resource, ahead of brain surgery, in intractable epilepsy).
Patients requiring anti-convulsant therapy should be maintained on this and due consideration given when determining the dosage and laterality of ECT administration. There is no indication for routinely instituting anti-convulsant treatment in patients with a history of epilepsy who are not currently on anti-convulsant.

- Physiological Effects of ECT in Pregnancy

The induction of a generalised seizure is associated with an acute elevation of oxytocin which, obviously, can induce uterine contractions. Consultation with an obstetrician would be advisable and the anaesthetist will usually wish to perform the ECT in a facility which allows safe delivery (i.e. with respect to both equipment and personnel!) in the event of induction of early labour!
The risks of reflux always need to be weighed against the possibility of laryngeal/tracheal sympathetic reflexes, when intubating, inducing tachycardia or pressor responses. (these cases are unlikely to be done at TCH)

- Dental Considerations

Patients dentition must be assessed pre-ECT. Problems include the following;
Damaged / chipped / cracked teeth- risk of damage
Veneers / Caps / Crowns / Bridges – risk of damage
Loose teeth- usually due to periodontal disease
- risk of loss
- risk of aspiration into respiratory tract during general anaesthesia
The patient should be warned of potential damage / loss of abnormal teeth during ECT, and that this might occur despite all efforts to protect dentition. The Psychiatrist should attempt to highlight and document the risks that have been discussed with the patient where practicable.

The Anaesthetist is ultimately responsible for the patient's airway during Anaesthesia. If a patient is found to have extremely loose teeth which endanger the airway it may be necessary to obtain a dental opinion first. Should a non- capacitant patient be found to have significantly loose teeth, the Anaesthetist may have to weigh up the risks/benefits of extraction at time of Anaesthesia in order to preserve patient safety. All clinical management relating to dentition must be documented in the medical notes, and explained to the patient.

If during or following the ECT, if the patient deteriorates and needs transfer to an intensive care unit (ICU), then this will require transfer to either Altnagelvin or to SWAH. The anaesthetist will liaise with the ICU co-ordinator at either hospital and organises this. This will require contact with the ambulance service and/or NICATTS. If the

anaesthetist decides to travel with the patient then this needs to be related to the anaesthetic co-ordinator and the lead anaesthetic clinician.

Additional Reading

For a concise over-view of current issues in ECT-related anaesthesia, refer to:
ECT Handbook, published by Royal College of Psychiatrists (CR128 – Council Report), 2nd edn. Edited by Scott, 2005.

Electro-Convulsive Therapy – 4th edn. Abrams. Although not specifically pertaining to anaesthetic issues in ECT, this is the most thoroughly researched text available and has very detailed but lucid explanations of all aspects of ECT theory and practice, with particularly relevant sections on physiological principles of ECT and research pertaining to co-morbid medical conditions and drug treatments.

APPENDIX 7 PLANNING ECT TREATMENT

Electrode Placement

Bilateral placement is preferable when –

The rate of clinical improvement and completeness of response have priority.

An earlier episode of illness has not been treated adequately by unilateral ECT.

Determination of cerebral dominance is difficult

Treating mania

Unilateral placement is preferable when –

Minimising the cognitive adverse effects has priority

The rate of clinical improvement is not critical

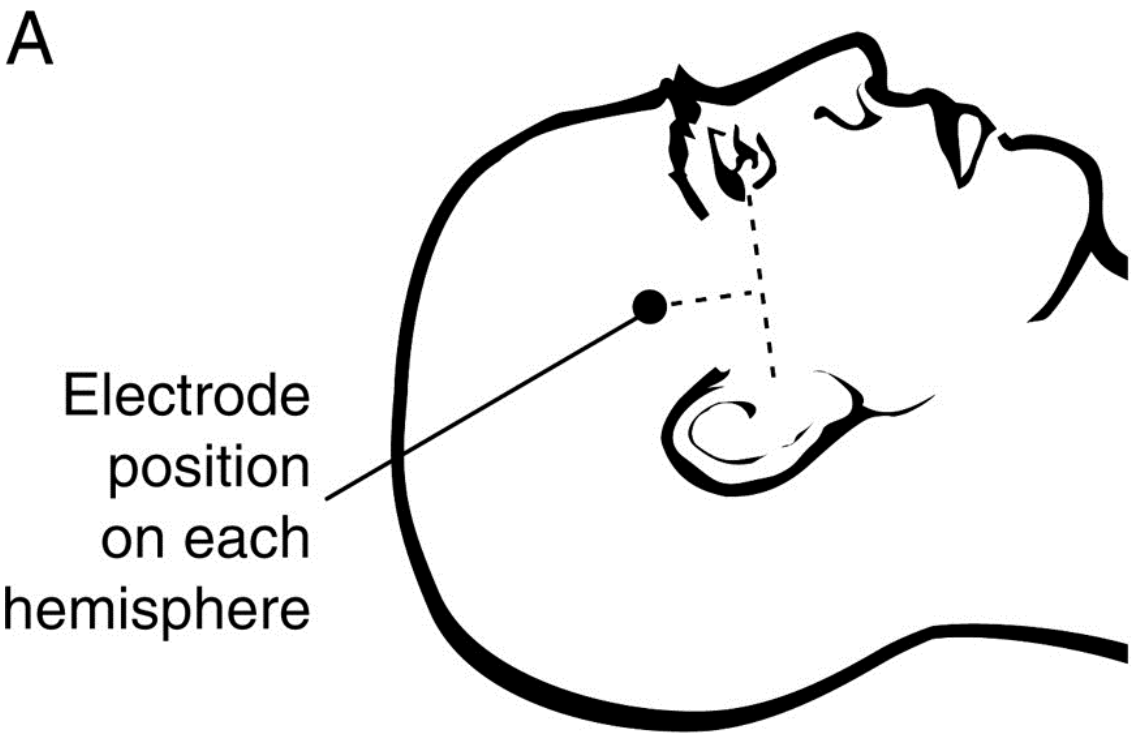
There is a history of recovery with unilateral ECT

Patient preference

Electrode placement for treatment should be part of the informed consent process. Patient preference will also be considered when making the decision with regards to electrode placement. Bilateral placement is usual practice at this time.

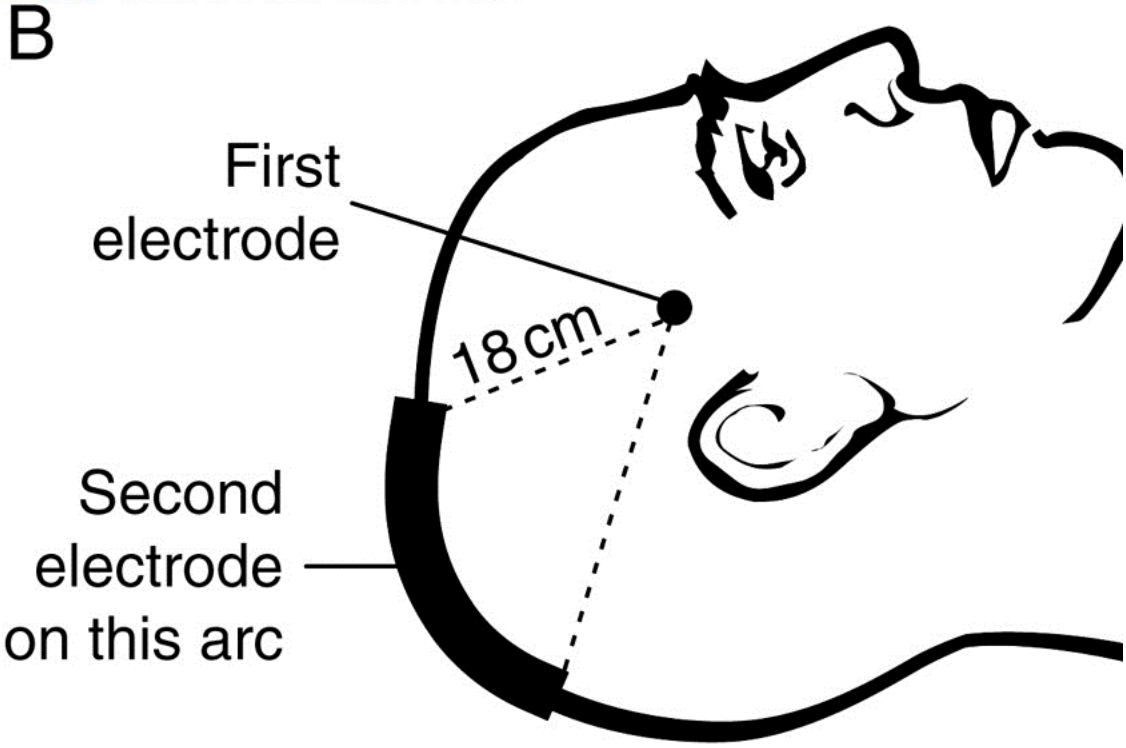
APPENDIX 8 ECT ELECTRODE POSITIONS

Bilateral ECT



D'Elia Position for Unilateral ECT

B

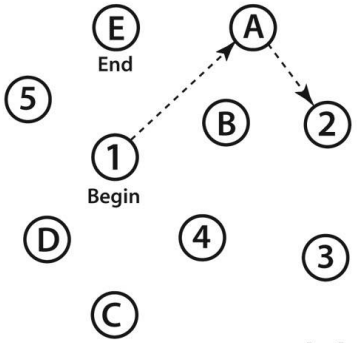
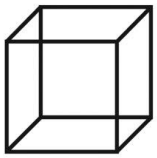
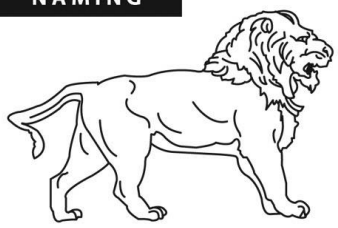
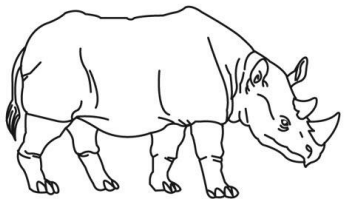
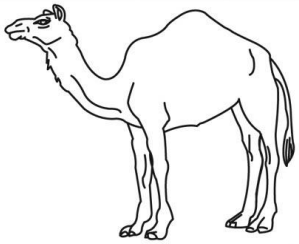


Western Health and Social Care Trust

APPENDIX 9 MONTREAL COGNITIVE ASSESSMENT TOOL

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME :
Education : Date of birth :
Sex : DATE :

		POINTS
VISUOSPATIAL / EXECUTIVE	 [ ] Copy cube  [ ]	Draw CLOCK (Ten past eleven) (3 points) [ ] Contour [ ] Numbers [ ] Hands	__/5
NAMING	 [ ]  [ ]  [ ]		__/3

MEMORY Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION Read list of digits (1 digit/ sec.).
Subject has to repeat them in the forward order [ ] 2 1 8 5 4
Subject has to repeat them in the backward order [ ] 7 4 2 __/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B __/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65
4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt** __/3

LANGUAGE Repeat : I only know that John is the one to help today. [ ]
The cat always hid under the couch when dogs were in the room. [ ] __/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words) __/1

ABSTRACTION Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler __/2

DELAYED RECALL

	Has to recall words **WITH NO CUE**	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only
Optional	Category cue						
	Multiple choice cue						

__/5

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City __/6

© Z.Nasreddine MD **www.mocatest.org** Normal ≥ 26 / 30

TOTAL __/30
Add 1 point if ≤ 12 yr edu

Administered by: _____

APPENDIX 10 **MOCA ADMINISTRATION INSTRUCTIONS**

Montreal Cognitive Assessment
(MoCA)
Administration and Scoring Instructions

The Montreal Cognitive Assessment (MoCA) was designed as a rapid screening instrument for mild cognitive dysfunction. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. Time to administer the MoCA is approximately 10 minutes. The total possible score is 30 points; a score of 26 or above is considered normal.

1. Alternating Trail Making:

Administration: The examiner instructs the subject: *"Please draw a line, going from a number to a letter in ascending order. Begin here* [point to (1)] *and draw a line from 1 then to A then to 2 and so on. End here* [point to (E)]."
Scoring: Allocate one point if the subject successfully draws the following pattern: 1 −A- 2- B- 3- C- 4- D- 5- E, without drawing any lines that cross. Any error that is not immediately self-corrected earns a score of 0.

2. Visuoconstructional Skills (Cube):

Administration: The examiner gives the following instructions, pointing to the **cube**: "*Copy this drawing as accurately as you can, in the space below*".
Scoring: One point is allocated for a correctly executed drawing.
• Drawing must be three-dimensional
• All lines are drawn
• No line is added
• Lines are relatively parallel and their length is similar (rectangular prisms are accepted)
A point is not assigned if any of the above-criteria are not met.

3. Visuoconstructional Skills (Clock):

Administration: Indicate the right third of the space and give the following instructions: *"Draw a **clock**. Put in all the numbers and set the time to 10 past 11".*
Scoring: One point is allocated for each of the following three criteria:
• Contour (1 pt.): the clock face must be a circle with only minor distortion acceptable (e.g.,slight imperfection on closing the circle);
• Numbers (1 pt.): all clock numbers must be present with no additional numbers; numbers must be in the correct order and placed in the approximate quadrants on the clock face; Roman numerals are acceptable; numbers can be placed outside the circle contour;
• Hands (1 pt.): there must be two hands jointly indicating the correct time; the hour hand must be clearly shorter than the minute hand; hands must be centred within the clock face with their junction close to the clock centre.
A point is not assigned for a given element if any of the above-criteria are not met.

4. Naming:
Administration: Beginning on the left, point to each figure and say: *"Tell me the name of this animal".*
Scoring: One point each is given for the following responses: (1) lion (2) rhinoceros or rhino (3) camel or dromedary.

5. Memory:
Administration: The examiner reads a list of 5 words at a rate of one per second, giving the following instructions*: "This is a memory test. I am going to read a list of words that you will have to remember now and later on. Listen carefully. When I am through, tell me as many words as you can remember. It doesn't matter in what order you say them"*. Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions: *"I am going to read the same list for a second time. Try to remember and tell me as many words as you can, including words you said the first time."* Put a check in the allocated space for each word the subject recalls after the second trial.
At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying, *"I will ask you to recall those words again at the end of the test."*
Scoring: No points are given for Trials One and Two.

6. Attention:
Forward Digit Span: Administration: Give the following instruction: "*I am going to say some numbers and when I am through, repeat them to me exactly as I said them*". Read the five number sequence at a rate of one digit per second.
Backward Digit Span: Administration: Give the following instruction: "*Now I am going to say some more numbers, but when I am through you must repeat them to me in the backwards order.*" Read the three number sequence at a rate of one digit per second.
Scoring: Allocate one point for each sequence correctly repeated, (*N.B.*: the correct response for the backwards trial is 2-4-7).
Vigilance: Administration: The examiner reads the list of letters at a rate of one per second, after giving the following instruction: "*I am going to read a sequence of letters. Every time I say the letter A, tap your hand once. If I say a different letter, do not tap your hand*".
Scoring: Give one point if there is zero to one errors (an error is a tap on a wrong letter or a failure to tap on letter A).
Serial 7s: Administration: The examiner gives the following instruction: *"Now, I will ask you to count by subtracting seven from 100, and then, keep subtracting seven from your answer until I tell you to stop."* Give this instruction twice if necessary.
Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is, if the participant responds with an incorrect number but continues to correctly subtract 7 from it, give a point for each correct subtraction. For example, a participant may respond "92 – 85 – 78 – 71 – 64" where the "92" is incorrect,

but all subsequent numbers are subtracted correctly. This is one error and the item would be given a score of 3.

7. Sentence repetition:
Administration: The examiner gives the following instructions: *"I am going to read you a sentence. Repeat it after me, exactly as I say it* [pause]: ***I only know that John is the one to help today."*** Following the response, say: *"Now I am going to read you another sentence.*
Repeat it after me, exactly as I say it [pause]: ***The cat always hid under the couch when dogs were in the room."***
Scoring: Allocate 1 point for each sentence correctly repeated. Repetition must be exact. Be alert for errors that are omissions (e.g., omitting "only", "always") and substitutions/additions (e.g., "John is the one who helped today;" substituting "hides" for "hid", altering plurals, etc.).

8. Verbal fluency:
Administration: The examiner gives the following instruction: *"Tell me as many words as you can think of that begin with a certain letter of the alphabet that I will tell you in a moment. You can say any kind of word you want, except for proper nouns (like Bob or Boston), numbers, or words that begin with the same sound but have a different suffix, for example, love, lover, loving. I will tell you to stop after one minute. Are you ready?* [Pause] *Now, tell me as many words as you can think of that begin with the letter F.* [time for 60 sec]. *Stop."*
Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject's response in the bottom or side margins.

9. Abstraction:
Administration: The examiner asks the subject to explain what each pair of words has in common, starting with the example: *"Tell me how an orange and a banana are alike".* If the subject answers in a concrete manner, then say only one additional time: *"Tell me another way in which those items are alike".* If the subject does not give the appropriate response *(fruit)*, say, *"Yes, and they are also both fruit."* Do not give any additional instructions or clarification.
After the practice trial, say: *"Now, tell me how a train and a bicycle are alike".* Following the response, administer the second trial, saying: *"Now tell me how a ruler and a watch are alike"*. Do not give any additional instructions or prompts.
Scoring: Only the last two item pairs are scored. Give 1 point to each item pair correctly answered. The following responses are acceptable:
Train-bicycle = means of transportation, means of travelling, you take trips in both;
Ruler-watch = measuring instruments, used to measure.
The following responses are **not** acceptable: Train-bicycle = they have wheels; Ruler-watch = they have numbers.

10. Delayed recall:
Administration: The examiner gives the following instruction: *"I read some words to you earlier, which I asked you to remember. Tell me as many of those words as you can*

remember." Make a check mark (√) for each of the words correctly recalled spontaneously without any cues, in the allocated space.
Scoring: **Allocate 1 point for each word recalled freely without any cues.**
Optional: Following the delayed free recall trial, prompt the subject with the semantic category cue provided below for any word not recalled. Make a check mark (√) in the allocated space if the subject remembered the word with the help of a category or multiple-choice cue. Prompt all non-recalled words in this manner. If the subject does not recall the word after the category cue, give him/her a multiple choice trial, using the following example instruction, *"Which of the following words do you think it was, NOSE, FACE, or HAND?"* Use the following category and/or multiple-choice cues for each word, when appropriate:
FACE: category cue: part of the body multiple choice: nose, face, hand
VELVET: category cue: type of fabric multiple choice: denim, cotton, velvet
CHURCH: category cue: type of building multiple choice: church, school, hospital
DAISY: category cue: type of flower multiple choice: rose, daisy, tulip
RED: category cue: a colour multiple choice: red, blue, green
Scoring: **No points are allocated for words recalled with a cue.** A cue is used for clinical information purposes only and can give the test interpreter additional information about the type of memory disorder. For memory deficits due to retrieval failures, performance can be improved with a cue. For memory deficits due to encoding failures, performance does not improve with a cue.

11. Orientation:
Administration: The examiner gives the following instructions: "Tell me the date today". If the subject does not give a complete answer, then prompt accordingly by saying: *"Tell me the [year, month, exact date, and day of the week]."* Then say: *"Now, tell me the name of this place, and which city it is in."*
Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place (name of hospital, clinic, office). No points are allocated if subject makes an error of one day for the day and date.

TOTAL SCORE: Sum all subscores listed on the right-hand side. Add one point for an individual who has 12 years or fewer of formal education, for a possible maximum of 30 points.
A final total score of 26 and above is considered normal.

23.0 SIGNATORIES

_____ **Date:** _____

Name
Title

_____ **Date:** _____

Name
Title